Curriculum is one component of a larger mathematics instructional program in Washoe County School District (WCSD) for Kindergarten through 5th grade students. The purpose of curriculum guides are to bridge the district’s K-5 Philosophy of Mathematics Education with the Nevada Academic Content Standards (NVACS) through a connection of the Curriculum Pacing Frameworks, instructional materials (Bridges in Mathematics or enVision Math 2.0), research based instructional practices and clarification of the standards when necessary. The following describes a course of study for the specified grade for one year. **ALL** students must receive quality instruction in **ALL** grade level standards in one instructional year.

This guide is designed to be used with the instructional materials during planning. This guide is not meant to supplant any portion of the instructional materials. Teachers will continue to read through Units/Topics during instructional planning.

**Guide language:**

Throughout the guide the following language is used to describe the level of understanding expected at the lesson level. This language is found in the lesson-by-lesson section in the column labeled “Big Idea Mathematical Development”.

**Beginning:** Indicates students initial explorations with the mathematical idea[s] explored in the lesson. *Instruction continues to the next lesson.*

**Developing:** Students have worked with the mathematical ideas in previous grades or previously during the year. The focus of the lesson is to connect and build student understanding. Teachers provide intensified support to students who may exhibit misconceptions, partial understanding, no or limited understanding. *Instruction continues to the next lesson.*

**Secure:** Indicates that students have worked previously with these ideas and are expected to be at a level of secure understanding. Students with secure understanding are able to make connections and use the mathematics in a variety of situations; yet may still struggle expanding the understanding to non-routine situations. Students who are secure may still make mistakes at times; yet these students demonstrate that they have mathematical understanding with limited if any misconceptions. Students not secure in the understanding by the end of that Unit/Topic might benefit from small group intensification on these ideas. Teachers may choose to use an **A/D/E** (Assessment, Differentiation or Extension) day to provide additional instructional opportunity; yet should be cautious to not spend too long exploring these ideas to ensure students have ample opportunity for instruction to **ALL** of the Nevada Academic Content Standards (NVACS) for mathematics.

<table>
<thead>
<tr>
<th>NVACS (Context and Practice)</th>
<th>Big Idea Mathematical Development</th>
<th>Instructional Clarifications &amp; Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.O.A.3</td>
<td>Access Prior Learning:</td>
<td>Students continue to build fluency with addition and subtraction facts within 20 as they construct the big idea of equivalence and the understanding that even numbers can be classified as even or odd by showing numbers as two equal parts.</td>
</tr>
<tr>
<td>2.O.A.2</td>
<td>In first grade, students had the opportunity to work with the classification of even and odd numbers.</td>
<td></td>
</tr>
<tr>
<td>MP.4</td>
<td>Securing the Big Idea:</td>
<td>Topic Opener: Consider limiting the Topic Opener to discussion of the Topic Essential Question (TEQ) 77. Review What You Know (TE 7.19-20) and the Topic 2 Vocabulary Words Activity with the words even and odd. Introduce remaining vocabulary words as they appear in the lessons. Post the question and student strategies on your math focus wall.</td>
</tr>
<tr>
<td>MP.5</td>
<td>In this lesson, students are securing understanding that numbers can be classified as even or odd by showing numbers as two equal parts.</td>
<td></td>
</tr>
<tr>
<td>MP.7</td>
<td>Visual Learning:</td>
<td>Have students make cube towers to increase understanding and engagement. Although the Visual Learning discusses the pattern in the ones digits for even and odd numbers, focus the conversation on defining even numbers as numbers that can be broken into two equal parts.</td>
</tr>
</tbody>
</table>

**Curriculum Development Team 2017/2018:** Amanda Schlatter (Lead), Linda Koyen, Jeannie Sartoni, Shayla Taylor; 2018: Amanda Schlatter (Lead) Sarah Johnson, Erin Re, Jeannie Sartoni, Anna Williams

**Curriculum Review Teams 2018/2019:** Amanda Schlatter (Lead), Anna Williams, Jeanie Sartoni, Erin Re, Sarah Johnson, Stephanie Vega

**Note:** Please e-mail Denise Trakas [dtrakas@washoeschools.net](mailto:dtrakas@washoeschools.net) with any questions, concerns or potential correction suggestions.
First Grade Unit 1: Numbers All Around Us

Big Conceptual Idea: K-5 Progression on Counting and Cardinality and Operations and Algebraic Thinking (pp. 12-17) K-5 Progression on Number and Operations in Base Ten (pp. 6-7)

Read the Grade 1 Welcome to Bridges in Mathematics Introduction in the front of Unit 1 Binder (there are no page numbers). Throughout the unit the Math Practices are introduced and used. Find student friendly posters here.

Links may require you being logged into your Bridges Educator Site. If the link does not work for you, copy and paste the http:// address into a browser.

Instructional note:

This unit’s Big Idea focuses on exploring and communicating about numbers, the development of number sense and number combinations; as well as, learning the routines and procedures for the math instructional block. Throughout this unit teachers will be establishing the learning environment. Consider introducing the expectations during communications, such as using agreed upon discussion structures (Accountable Talk), listening to the speaker, respectfully agreeing and adding onto each other’s thinking. Focus instruction on NVACS standards 1.OA.5, 1.OA.6, 1.NBT.1, 1. MD.2, 1.MD.4, 1.G.2 (2010, p. v). Four additional days are built into this unit: two are built in for the first two days of school and two to be used as needed. Consider saving at least one for the Unit Assessment. The launching of this unit supports the teaching of routines and procedures embedded within the lesson. Integrate the use of the Math Practice Posters throughout the unit.

As teachers address the standards identified throughout the units it will be noticed that Numbers Base Ten tracks throughout the year. As students develop deeper understanding of operations and algebraic thinking standards, they will couple this work with the place value concepts as well. *There is no need to separate place-value instruction from computation instruction. Children’s efforts with the invention of their own computation strategies will both enhance their understanding of place value and provide a firm foundation for flexible methods of computation (Van de Walle, Karp, Lovin, Bay-Williams, 2014, p. 176).

Essential Academic Vocabulary

Use these words consistently during instruction

<table>
<thead>
<tr>
<th>New Academic Vocabulary:</th>
<th>Review Vocabulary:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use these words consistently during instruction to begin to develop understanding. *a Word Resource Card is available</td>
<td>(Vocabulary taught prior grades or units)</td>
</tr>
<tr>
<td>Picture graph*</td>
<td>Graph</td>
</tr>
<tr>
<td>More than information</td>
<td>Addition</td>
</tr>
<tr>
<td>Pattern*</td>
<td>Subtraction</td>
</tr>
<tr>
<td>Less than*</td>
<td>Nickel*</td>
</tr>
<tr>
<td>Tally</td>
<td>Penny*</td>
</tr>
<tr>
<td>Equal*</td>
<td>Length*</td>
</tr>
<tr>
<td>Equation*</td>
<td>Long/longer/longest*</td>
</tr>
<tr>
<td></td>
<td>Short/shorter/shortest*</td>
</tr>
</tbody>
</table>

Additional terminology that students may need support with: Hundreds grid, Number words (zero, one, two…etc. to ten), skip-count, ten-frame, question
<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><strong>Module 1 - Session 1: Popsicle Pattern Chart, Part 1</strong></td>
<td><strong>Supports</strong> 1.OA 1.NBT MP.7 MP.8 <strong>Developing the Big Idea:</strong> -Schema about popsicles, specifically those with two sticks. You may want to find an image to show them. <strong>Developing the Big Idea:</strong> As students are noticing things about the popsicle chart encourage them as they communicate these ideas to support the big idea of exploring and communicating about numbers.</td>
<td><strong>Guiding Questions:</strong> What patterns do you notice in our popsicle display? How do work places look and sound? <strong>Instructional NOTE:</strong> Allow time for the instruction of routines and procedures. Take the time needed during the lesson and the work places to create the classroom environment, procedures, and establish expectations for listening to others as they communicate about numbers. -Try the online tools on the Educator Site: This is the link to the Pattern Block App -Consider beginning work places by creating anchor charts for what work places should look like and sound like. Add these to support routines and behaviors. <strong>Enrichment:</strong> See Step 10 in lesson (p. 7) <strong>Child Watching:</strong> -Begin identifying any students struggling with cardinality, identification of numbers, or counting by ones.</td>
</tr>
<tr>
<td><strong>Module 1 - Session 2: Popsicle Graph</strong></td>
<td><strong>Access Prior Learning:</strong> 1.MD.4 MP.4 MP.6 <strong>Developing the Big Idea:</strong> Specify and practice the routines set yesterday on work place use. Establish routines on whiteboard use.</td>
<td><strong>Guiding Question:</strong> What information does the popsicle graph tell us? <strong>Instructional NOTE:</strong> -Be sure to continue teaching procedures and routines today with the new math manipulative, whiteboards and markers. -Create &quot;sticks&quot; to use when calling on students, and set the expectation that students to share will be selected from the sticks instead of calling on raised hands. This helps create the environment that all students have the chance to be called upon or strategically choose students to share to better develop the mathematics concepts. Use the sticks to keep track for yourself who you have not yet acknowledged and build opportunities to incorporate student's mathematical ideas. -Establish wait time before selecting a student to respond to ensure all students have an opportunity to think. -Lessons provide opportunities to engage in the math practices. Consider making this explicit to the students by explaining what they are doing as a mathematician. Pull out the math practice posters (found here). Read poster MP.4, and help them see the popsicle graph as modeling with mathematics. Hang the poster up to refer to in future lessons. <strong>Enrichment:</strong> See Steps 9 and 10 in lesson (p. 14) <strong>Child Watching:</strong> -Identify students struggling with cardinality, identification of numbers, or counting by ones. -Watch for students who count by ones and students who are counting by groups.</td>
</tr>
</tbody>
</table>
| **Module 1 - Session 3: Popsicle Party** | **Access Prior Learning:** 1.NBT.1 MP.1 MP.7 **Developing the Big Idea:** Students will be developing number sense as they count up and down on the number line. | **Guiding Questions:** How can we determine if we have enough popsicle sticks for everyone? Will there be any left over? **Instructional NOTE:** This is the first lesson of the year that poses a problem to investigate. Note that Problems and Investigations intends for students to work through the problem. Do not be afraid to just pose the question (“We have (number of twin-pops) in the basket. Do we have enough for everyone in the class to have a twin-pop, if so, how many would be left over?”). Allow students to grapple with the problem on their own for a bit. Encourage students to access math tools and manipulatives such as unifix cubes. Consider setting various tools were they are readily accessed, such as placing them in bins on tables. Refrain from jumping right in and showing students what to do. After students get started, consider pausing work to highlight strategies you are seeing. This provides a support for students who may be struggling with an entry point. Consider trying the online tools from the Educator Site such as the Number Line Tool. -Here is an App for a Geoboard. **-continues on next page-**
### Module 1 - Session 4: Tally-Ho

**1.NBT.1**
- Access Prior Learning: count by 5s (While students have worked with count by 5s previously; this is not an assessed outcome until 2nd grade).

**MP.7**
- Child Watching: This is a great opportunity for you to assess who attacks the problem.
- Identify if students begin using the tools without prompting.
- Begin to note what strategies students use. Strategies to watch for include:
  - Count all popsicles, count all students, separate the extras (they might want to match them up with unifix cubes, then count all extras.
  - Count all popsicles, then count on from the number of students to the number of popsicles to determine the difference.
  - Using a subtraction method, or counting down from the largest number.

**Developing the Big Idea:**
- Students will be developing number sense as they count up and down on the number line.

**Guiding Question:** How can organizing tally marks help us count?

**Instructional NOTE:**
- See Math Practices in Action (p. 24). Pull out the poster for MP.7, make it explicit and hang the poster with MP.4 poster.
- The Flash and Build game provides opportunities for students to subitize, which is a big idea pivotal to the development of number sense. If students struggle showing with popsicle sticks what they saw for 2-3 seconds on the cards show them again, ask them to visualize what they saw, then recreate.
- If students are struggling with expectations in work places, consider creating a “what it looks like, and sounds like” anchor chart with students. Review this chart before going to work places every day, and have a few students model the expectations for the others. Release a few at a time and ask the others to evaluate how students are doing with hand signals.

**Enrichment:** See Step 15 (p. 26)

**Child Watching:**
- Observe for who is subitizing numbers 1, 2, 3, 4, 5 with tally marks
- Continue watching for counting up strategies. Do they count all by 1s? Do they start from 5 and count on?

### Module 1 - Session 5: Popsicle Pattern Chart, Part 2

**1.NBT.1**
- Access Prior Learning: Remind students of popsicle graph made earlier, introduce the hundreds grid, remind them they used this in kindergarten

**MP.7**
- Child Watching: Observe for who is subitizing numbers 1, 2, 3, 4, 5 with tally marks

**MP.8**
- Continue watching for counting up strategies. Do they count all by 1s? Do they start from 5 and count on?

**MP.3**
- Developing the Big Idea: As they communicate observations support the big idea of exploring and communicating about numbers.

**Guiding Question:** What patterns do we see on the popsicle chart?

**Instructional NOTE:**
- Establish expectations for using student books.
- Consider encouraging students to use Accountable Talk stems such as I notice..., I believe... I agree with... I’d like to add onto...
- Although the lesson doesn’t specify the math practice 3, consider introducing the poster for MP.3 stating that mathematicians “talk and explain.” Bridge this with introducing Accountable Talk.

**Enrichment:** See Step 5 (p. 29)

**Child Watching:**
- Observe for students who make connections to other work or one another's ideas. Foster this with your connections. “Jenny are you noticing the same thing Jose noticed? Can you tell us more?”
### Module 2- Session 1: Show Me on the Number Rack

<table>
<thead>
<tr>
<th>Supports</th>
<th>Access Prior Learning: Students used number racks in kindergarten and will rely heavily on the counting and cardinality standards. (K.CC.4, K.CC.5)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Developing the Big Idea: Students will develop routines and expectations for using the number rack.</td>
</tr>
<tr>
<td></td>
<td>Guiding Question: How can the number rack represent numbers in many ways? What does the numbers represent?</td>
</tr>
</tbody>
</table>

**Instructional NOTE:**
- There may be extra time in this lesson if the number racks have previously been constructed. Consider using pony beads, cardboard and pipe cleaners to construct racks for students to use at home, or use the extra time to repeat steps 12 and 13 with the number 10 (p. 6).
- Consider trying the online tools from the Educator Site such as the Number Rack Tool.
- Consider where racks might be stored, some classrooms store them in one place together and pass them out as needed with no names, some have students keep them individually. The important piece is to establish the understanding that students can use them at any time, even if not told to, so ensuring easy accessibility is a must.

**Enrichment:**
- See Step 10 (p. 6)

**Child Watching:**
- Observe for students who may still struggle with counting or cardinality. Be sure to begin providing these students with extra opportunities and support
- Observe for students who begin composing 10
- Observe for students counting by 1’s or sliding over 5 and then some more when making numbers larger than 5

---

### Module 2- Session 2: Making Five & Ten

<table>
<thead>
<tr>
<th>Supports</th>
<th>Access Prior Learning: Many students may have secured combinations within 5 in kindergarten.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Developing the Big Idea: Students are deepening number sense through composing fives and tens.</td>
</tr>
<tr>
<td></td>
<td>Guiding Question: What are the different ways we can make 5 (10) on the number rack?</td>
</tr>
</tbody>
</table>

**Instructional NOTE:**
- First Home Connection goes home. See the WCSD homework policy [here](#).

**Enrichment:**
- See Step 7 (p. 10)

**Child Watching:**
- Observe for students struggling to represent combinations of 5. See support note (p. 9)

---

### Module 2- Session 3: Ten-Frame Flashes

<table>
<thead>
<tr>
<th>Supports</th>
<th>Access Prior Learning: “Students come to quickly recognize the cardinalities of small groups without having to count the objects; this is called perceptual subitizing.” (p. 4) Many students in kindergarten will have developed perceptual subitizing.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Developing the Big Idea: Students will deepen conceptual subitizing skills to continue developing number sense to 10.</td>
</tr>
<tr>
<td></td>
<td>Guiding Question: How do you “see” the dots on the ten-frame without counting them all?</td>
</tr>
</tbody>
</table>

**Instructional NOTE:**
- From the K-5 Progression on Counting and Cardinality and Operations and Algebraic Thinking documents (p. 4) "The use of conceptual subitizing in adding and subtracting small numbers progresses to supporting steps of more advanced methods for adding, subtracting, multiplying and dividing single digit numbers." This lesson is opportunity deepen their subitizing skills and move from perceptual to conceptual subitizing.
- Many lessons begin with a counting warm up. It is tempting to skip these to save time, however, be aware that these daily counting practices are important to Numbers Base Ten development. You will notice that this warm up as others before, are great precursors for the work we will do on the number line in Unit 4.

**Enrichment:**
- See Step 7 (p. 14)

**Child Watching:**
- Observe for students struggling with subitizing, meet with them in small group during Work Places. See support note (p. 14).

---

### Module 2- Session 4: Introducing Work Place 1F Flip & Write

<table>
<thead>
<tr>
<th>Supports</th>
<th>Access Prior Learning: The work places logs were optional in kindergarten. Some students may have been exposed, some may not.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Developing the Big Idea: Specify and practice the routines set for work place use, and logs. Establish routines for folders.</td>
</tr>
<tr>
<td></td>
<td>Guiding Questions: How do we use work place folders and logs successfully? Flip and Write: Can you recognize a number without counting all the dots?</td>
</tr>
</tbody>
</table>

**Instructional NOTE:**
- Today introduce the work place folders and work place log. Note that many students are successful with this in classrooms across the district (Self-Regulation). Teachers have found success with phrases such as "Choosing is a privilege, if you struggle I will make the choice for you.”

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*continues on next page*
Here is one idea in establishing routines such as how many students per workplace. Provide each student with a clothespin, when each circle has a clothespin on it, students know that workplace is closed. Instruct students to quickly find another workplace for that session that is still open. See picture to right.

Some teachers staple logs on to the back of the folder, adding one with each unit. Another idea is to use sleeves, with dry erase markers, and reuse logs each year. See picture.

Consider taking a math grade on 1.NBT.1 using the Work Place 1F. See rubric and grading suggestions found on the district site here.

**Enrichment:** Work Place Game Variations (p. T2)

**Child Watching:**
- Observe for students struggling with writing numerals accurately. Provide feedback and opportunities to practice.
- Work places are opportunities for you to take observations for grading purposes. See the documents for Reporting Progress Suggestions which includes rubrics that use information from the Work Place Guide found in the Teacher Masters pages (p. T1). The rubrics suggest how to convert observations into the 1-4 scale on Infinite Campus. Note: It is recommended to allow several days of playing a Work Place game before taking a grade on it.

---

### Module 2 - Session 5: Quick Count Checkpoint

**1.OA.6**

**MP.5**

**MP.7**

**Access Prior Learning:**
- K.CC.3a: write numbers from 0 to 20. Represent a number of objects with a written numeral.
- Perceptual subitizing

**Developing the Big Idea:**
Students will deepen conceptual subitizing skills to continue developing number sense to 10.

**Guiding Questions:**
How are we doing with counting small sets of objects quickly (subitizing)?

**Ten & More:**
What patterns do we see when we add 10 to a number?

**Instructional NOTE:**
- The assessment binder under the Bridges Unit Assessment Tab provides the scoring guide for this checkpoint. It can also be downloaded from the site [here](https://bridges.mathlearningcenter.org/implementation).
- See the right hand side where it says, “assessment tools.” Download the Bridges Unit Assessments to enter scores digitally and produce a color coded spreadsheet.
- Work Place 1G is recommended as a potential grade. Use the provided rubrics as a tool to assess.

**Enrichment:** Work Place Game Variation (p. T7)

**Child Watching:**
- Use the scoring guide to formatively assess 1.OA.6 and decide instructional next steps.

---

### Module 3 - Session 1: Two Parts, One Whole

**1.OA.1**

**1.OA.6**

**MP.4**

**MP.5**

**Access Prior Learning:**
- Kinder worked with Add to/Result Unknown problem types within 10.
- They solved addition and subtraction equations while connecting these equations to situations verbally or with drawings.

**Developing the Big Idea:**
Students will deepen their understanding of numbers and their relationships to one another.

**Guiding Question:**
What are strategies we can use to find the whole?

**Instructional NOTE:**
- Read the About This Session (p. 4), pull out the poster for MP.5, make it explicit and hang the poster with the other posters. Review MP.4.
- Consider using terms such as “becomes” simultaneously with “equals” (5 “becomes” 4+1.)
- This lesson provides a great opportunity to begin naming strategies students use for counting two parts to determine the whole. After posing the first question (4+2) and having students model it on a number rack, look for the strategies used. Some may count all, some may count on (from smaller or from the larger number), some may use more sophisticated strategies such as seeing a double, or using 5 as a landmark. Strategically observe for and select students in this order of sophistication to share. Document the thinking on a class poster or anchor chart. Then when posing the next questions encourage students to try a different strategy.

-continues on next page-
There are 12 problem types that students will encounter in first grade. This lesson focuses on the Add To/Result Unknown, Add To/Change Unknown, and Add To/Start Unknown. The progression documents explain, "Using properties and/or relationships between operations. Linking equations to concrete materials, drawings, and other representations of problem situations affords deep and flexible understandings of these building blocks of algebra" (K-5 Progression on Counting and Cardinality and Operations and Algebraic Thinking, p. 13). See Table 2 on page 9 for examples.

Enrichment: See Step 7 (p. 7)

Child Watching:
- Observe for students struggling to model and solve these stories with the number rack. Try craft sticks instead, or encourage the compensation strategy. See support note (pp. 6-7)

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Module 3- Session 2: Show Me the Numbers

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
<th>Guiding Questions: What different parts equal the whole of 10? How can we see these parts without counting by 1s? How do you ‘see’ the dots?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.OA.6</td>
<td></td>
</tr>
<tr>
<td>1.OA.8</td>
<td></td>
</tr>
<tr>
<td>MP.4</td>
<td></td>
</tr>
<tr>
<td>MP.7</td>
<td></td>
</tr>
</tbody>
</table>

Guiding Questions: What different parts equal the whole of 10? How can we see these parts without counting by 1s? How do you ‘see’ the dots?

Instructional NOTE:
- Encourage students to show numbers in various ways, (6 can be 5 dots on top and 1 on bottom, or 3 and 3)
- Model the language “parts and whole” during conversations to help students understand the relationships between the numbers.

Enrichment:
- Step 12 provides an opportunity to formatively assess student understanding (p. 13). Expect 100% of students to show you their thinking on their fingers. Perhaps have them hold their fingers over their heart to prevent students from waving fingers around. This will support all students need for processing and thinking on their own.

Child Watching:
- Observe for students struggling to model and solve these stories with the number rack. Try craft sticks instead, or encourage the compensation strategy. See support note (pp. 6-7)

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Module 3- Session 3: Introducing Work Place 1H Which Coin Will Win?

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
<th>Guiding Questions: How many pennies (nickels) are on the graph? How much money is it? How many more pennies (nickels)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.NBT.1</td>
<td></td>
</tr>
<tr>
<td>1.MD.4</td>
<td></td>
</tr>
<tr>
<td>MP.4</td>
<td></td>
</tr>
</tbody>
</table>

Guiding Questions: How many pennies (nickels) are on the graph? How much money is it? How many more pennies (nickels)?

Instructional NOTE:
- Coins are used as tools for developing mathematics understanding in first grade. Many activities in the Units and Number Corner will expose students to coins and their names, and use them as a means to practice counting by or from ones, fives, and tens. Consider having families send in real coins for students to work with throughout the year. Note: working with money in contexts is explored further in 2nd grade (2.MD.8).
- Emphasize the guiding questions to encourage student focus on the math concepts of counting by 1s and 5s, and comparison of quantities, rather than a focus on coins.
- The educator site also has some of the Work Places that include digital tools such as spinners that can be used to model the game. See 1H here.

Enrichment: See challenge and Game Variations for Work Place 1H (pp. T2, T3)

Child Watching:
- Observe for students struggling to count and compare the coins on the graph.

---

Module 3- Session 4: Quick! Look!

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
<th>Guiding Question: How do you ‘see’ the number?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.OA.5</td>
<td></td>
</tr>
<tr>
<td>1.OA.6</td>
<td></td>
</tr>
<tr>
<td>1.NBT.1</td>
<td></td>
</tr>
<tr>
<td>MP.4</td>
<td></td>
</tr>
<tr>
<td>MP.7</td>
<td></td>
</tr>
</tbody>
</table>

Guiding Question: How do you ‘see’ the number?

Instructional NOTE: Students may struggle with the conceptualization of 20. Deepen understanding of cardinality to ten by focusing on just the top 10 beads by removing the bottom row.

Enrichment: See Step 7 (p. 22)

Child Watching:
- Observe for students using the strategy of 5 and 10 as a landmark number. Highlight the efficiency and effectiveness of anchoring on 5 to determine the total numbers of beads.
Module 3- Session 5: Measuring with Popsicle Sticks

Access Prior Learning:
- Kinder students learned to discriminate between measureable attributes such as big, tall, long, or high. K.MD.1

Developing the Big Idea:
Students will deepen their understanding of the relationships between numbers by comparing lengths.

Guiding Questions: How can popsicle sticks be used to measure objects? What rules could we make when using sticks to measure objects?

Instructional NOTE:
- Highlight math practice 6, attend to precision. Introduce the poster.
- A common mistake students make when measuring is not lining up their measurement tool to the very beginning of the item being measure, as well as understanding that gaps in-between popsicle sticks will result in inaccurate measurement. Students may also lay sticks to curve around the shape of their body, as opposed to making a straight line. Highlighting this will prevent measurement misconceptions from forming. Consider letting them explore, but notice for a student who lays sticks crookedly. Then mark the height on the wall with a piece of tape, use a length of string to create a truly "linear" length to represent the length of their body (the idea of transivity) and measure the string on the floor, laying sticks in a straight line. Discuss the differences between their original measurement and the new measurement to bring out these misconceptions.
- A non-standard unit of measurement is anything that is not consistently the same length (human feet/hands) as opposed to standard units of measurement, where each unit is always the same length (popsicle sticks). Refrain from using non-standard units. “Early use of many non-standard units may actually interfere with student’s development of basic measurement concepts required to understand the need for standard units” (K-6 Progression on Measurement and Data (Measurement Part), p. 9).

Enrichment:
Child Watching:
- Observe for students attending to precision with their measurement
- Observe for students with gaps, overlaps, or crooked popsicle stick laying

Module 4- Session 1: Number Rack Detectives

Access Prior Learning:
- Students began working on missing addends in Mod. 3 Session 1. Connect back to the Two Parts, One Whole lesson.

Developing the Big Idea:
Students will deepen their understanding of numbers and their relationships to one another. Be sure to read the “About this Session” (p. 4)

Guiding Question: What is the unknown part (the beads on the bottom) for the whole number (the number spun on the spinner)?

Instructional NOTE:

Enrichment: See Step 12 (p. 7)
Child Watching:
- Observe for students counting by 1s from the beginning. If you see this encourage the strategy of subitizing the top row, conserving the number, and counting on.

Module 4- Session 2: Introducing Work Place 1I Measuring with Unifix Cubes

Access Prior Learning:
- Measuring with popsicle sticks
- Kindergartners are exposed to the first Step-Making Comparisons with the goal of understanding the attribute to be measured (longer/shorter). See table 15.1 (Van de Walle, 2014, p. 271).

Developing the Big Idea:
Students will deepen their understanding of the relationships between numbers by comparing lengths and understanding how making comparisons of an attribute with measuring units produces a number called a measure.

Guiding Question: When measuring an object with 2 different units (sticks/cubes), what observations do we make with the measurements?

Instructional NOTE:
- The comparison of measuring a student with popsicle sticks, and then with unifix cubes will bring out a common student misconception, that the student measured with unifix cubes is taller/longer because it took more cubes than popsicle sticks, resulting in "judgements based upon experiences counting discrete objects." (K-6 Progression on Measurement and Data (Measurement Part), p. 9). Therefore, exploring the idea that the measurement iterations will increase or decrease the quantity of the units of measure may come up in your lesson. Note: Laying out copies of the same size unit and counting the units is called iteration (Van de Walle, et al., 2014, p. 272).

Enrichment: Challenge on the Work Place Guide (p. T2)
Child Watching:
- Observe for students attending to precision with their measurement
- Observe for students with gaps, overlays, or crooked unifix trains, remind them to attend to precision.

Module 4- Session 3: How Long is the Jump Rope?

Access Prior Learning:
- Measuring with popsicle sticks
- Kindergartners are exposed to the first Step-Making Comparisons with the goal of understanding the attribute to be measured

Guiding Question: How long is the jump rope using the teacher’s foot to measure?

-continues on next page-
MP.4 MP.6  

**Developing the Big Idea:** 
Students will deepen their understanding of the relationships between numbers by comparing lengths and understanding how making comparisons of an attribute with measuring units produces a number called a measure.

**Instructional NOTE:** 
- This lesson switches to using a non-standard unit of measurement as human feet are not consistently the same size, although using the same foot over and over can mimic a standard unit. The concept that different size feet will result in different numbers of measurement may challenge some students' understandings. “First grade students can learn that objects used as basic units of measurement (e.g., “match-length”) must be the same size” (K-6 Progression on Measurement and Data (Measurement Part), p. 9).

**Enrichment:** See the Extensions note in the lesson (p. 16). Have a student with a smaller foot count the length of the jump rope. Have a discussion about why the results from the student foot measurement is different than the teacher foot.

**Child Watching:** 
- Observe for students attending to precision with their measurement
- Observe for students with gaps, overlays.

---

**Module 4- Session 4: Quick! Look! Plus One, Minus One**

**1.OA.5**  
**1.OA.6**  
**1.NBT.1**  
**MP.4**  
**MP.7**

**Access Prior Learning:** 
- Perceptual subitizing
- Cardinality (word represents the whole amount)
- Quick! Look! Mod. 3 Session 4

**Developing the Big Idea:** 
Skills will deepen conceptual subitizing skills to deepen their understanding of numbers and their sense of 5s and 10s as landmark numbers.

**Guiding Question:** How can we see the number of beads without counting each one?

**Instructional NOTE:** The power of student conversation is critical in the opportunities built throughout each lesson. Engage students in mathematically focused conversations. As Parrish (2010) states in her book Number Talks, “Accuracy denotes the ability to produce an accurate answer; efficiency refers to the ability to choose an appropriate, expedient strategy for a specific computation problem; and flexibility means the ability to use number relationships with ease in computation” (p. 5). Encourage these conversations by focusing on questions in step 9 (p. 20).

**Enrichment:** See Step 7 (p. 22)

**Child Watching:** 
- Observe for students using the strategy of 5 and 10 as a landmark number. Highlight the efficiency and effectiveness of anchoring on 5 to determine the total numbers of beads.

---

**Module 4- Session 5: Unit 1 Group Assessment**

**1.OA.5**  
**1.OA.6**  
**1.NBT.1**  
**MP.2**  
**MP.7**

**Access Prior Learning:** 
- Subitizing
- Combinations to 5 and 10
- Counting by 1s and 10s
- Reading and writing numbers

**Developing the Big Idea:** 
Skills will deepen conceptual subitizing skills to deepen their understanding of numbers and their sense of 5s and 10s as landmark numbers.

**Guiding Question:** What strategies are we using when counting and adding numbers?

**Instructional NOTE:** 
- See the online Assessment Tools found here. Download the Bridges Unit Assessments to enter scores digitally and produce a color coded spreadsheet.
- When considering taking a grade note that none of these standards in their entirety are meant to be secure at this time (mastered). These ideas are still developing. Assessment Binder (pp. 13-15).
- Note the Grade 1 Progress Report found in your Assessment Binder (p. 36) and identify how 1.OA.6 is broken down to “Adds and Subtracts to 10, and so on. This breakdown of the standards will support you in making decisions for grade collection.

**Enrichment:**
- Refer to the Assessment Tool Scoring Guide
- Refer to Assessment Binder Support and Intervention (p. 3). Watch for students struggling with:
  - Rote counting to 20 starting at numbers other than 1
  - one-to-one correspondence and cardinality to 20
  - quickly recognizing quantities to 5 or 6 in scattered formation
  - or quantities to 10 on a ten-frame
  - reading and writing numerals.

---

Standards listed in **bold** indicate a focus of the lesson.
References


First Grade Unit 2: Developing Strategies with Dice and Dominoes

Big Conceptual Idea
K-5 Progression on Counting and Cardinality and Operations and Algebraic Thinking (pp. 12-17)
K-5 Progression on Number and Operations in Base Ten (pp. 6-7)

Throughout the unit the Math Practices are introduced and used. Find student friendly posters here.

Links may require you being logged into your Bridges Educator Site. If the link does not work for you, copy and paste the http address into a browser.

Note: Module 4 has been omitted from the pacing framework.

<table>
<thead>
<tr>
<th>Mathematical Background</th>
<th>Unit Essential Question: What are efficient, accurate, and flexible strategies for counting, adding and subtracting single-digit numbers?</th>
</tr>
</thead>
</table>

Instructional note:

This unit's Big Idea focuses on developing children's reasoning strategies for addition and subtraction outlined in standard 1.OA.6 (Nevada Academic Content Standards (NVACS), 2010). This includes counting strategies. There are 3 phases of learning that students must build to develop fluency with number and work toward “knowing from memory”, by the end of 2nd grade. The three phases are: 1. Constructing meaning and counting strategies. 2. Reasoning strategies. 3. Working toward quick recall. Students in 1st grade are building fluency by engaging in strategies working in phases 1 and 2. At this point in the year some may have begun moving into phase 2, but most students will be in phase 1, and therefore they will need opportunities to directly model situations and equations and use counting strategies to find the unknown. Note that students may weave in and out of phases. Research shows that, “instruction must help students through these phases without rushing to know their facts from memory” (Van de Walle, Karp, Bay-Williams, 2013, p.171). Additionally, “drill in the absence of accomplishing these phases has repeatedly been demonstrated as ineffective” (Van de Walle, et. al., 2014, p. 184). Furthermore, it can create issues in student understanding of number sense, impact flexibility working with number and create math anxiety. “Unfortunately many classrooms focus on math facts in unproductive ways, giving students the impression that math facts are the essence of mathematics, and, even worse that the fast recall of math fact is what it means to be a strong mathematics student. Both of these ideas are wrong and it is critical that we remove them from classrooms, as they play a large role in the production of math anxious and disaffected students” (Boaler, 2015, p. 1). Keeping these arguments in mind, it is imperative that the Big Idea of this unit remain in the constructing meaning and reasoning phases, which involve subitizing, counting all, counting on, counting back, and using known facts to derive solutions (e.g. I know that 8 +9 is 17 because 8 and 8 is 16 and 9 is one more than 8 so 16 and one more is 17). The purpose is deepening student understanding of numbers and their relationships to one another. Please see the fluency resources on the district site, as well these direct links for further information.


As students move through phases of fluency they will also be progressing through Concrete, Representational and Abstract reasoning. While students are solving problems with concrete materials they should have ample oppotunity to share their thinking with peers, through partner work, and whole class sharing/discussion. This could look like students being invited to bring their manipulatives to a document camera to model for others how they solved a problem. This can bring to light student misconceptions and mistakes as an opportunity to justify thinking and critique the reasoning of others.

During October Number Corner, students will have opportunities to practice creating story word problems. Unit 3 assessment will ask students to write their own story problem ending with a question. Bolster this work in Number Corner to support success by providing opportunities to explore various problem types (NVACS, 2010, p. 88).

Focus instruction on NVACS standards 1.OA.5, 1.OA.6, 1.OA.7, 1.OA.8, 1.NBT.3, 1.MD.4
Essential Academic Vocabulary
Use these words consistently during instruction

<table>
<thead>
<tr>
<th>New Academic Vocabulary:</th>
<th>Review Vocabulary:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use these words consistently during instruction to begin to develop understanding. *a Word Resource Card is available</td>
<td>(Vocabulary taught prior grades or units)</td>
</tr>
</tbody>
</table>

| Even number* | Add* |
| Odd number* | Addition |
| Difference* | Doubles |

Review Vocabulary:

- Even number*
- Odd number*
- Difference*
- Add*
- Addition
- Doubles
- Equal*
- Half*
- Sum or Total*
- Greater than*
- Less Than*
- Column*
- Row*
- Equation*
- Fact family*
- Subtract*
- Subtraction

Additional terminology that students may need support with: minus, plus, problem solving, reasonable, strategies

Standards listed in **bold** indicate a focus of the lesson.

<table>
<thead>
<tr>
<th>NVACS (Content and Practices)</th>
<th>Big Idea</th>
<th>Mathematical Development</th>
<th>Instructional Clarifications &amp; Considerations</th>
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<tbody>
<tr>
<td></td>
<td>K.CC.5</td>
<td>Access Prior Learning:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.OA.5</td>
<td>-Schema about dominoes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.OA.6</td>
<td>K.CC.5- Count to answer “How many?”</td>
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<tr>
<td></td>
<td>MP.7</td>
<td>Developing the Big Idea:</td>
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<tr>
<td></td>
<td></td>
<td>Students work in phase 1 to deepen their understanding of numbers and their relationships to one another.</td>
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</tbody>
</table>

Guiding Question: Ask questions that assess and advance student understanding around the Big Mathematical Idea in the Lesson and the conceptual understanding developing throughout and among units. Teachers should be responsive to their student learners and their needs to create guiding questions to support the content from this point forward.

Instructional NOTE:

- Students will likely want to count all the dots on the dominoes. Try focusing on using strategies that start with subitizing one part of the domino, and counting on from there.

- Introduce Math Practice 8. Hang the poster with the others (found [here](https://bridges.mathlearningcenter.org/implementation/blog/perfecting-partner-games-practicing)). With the onset of partner play games versus free explore you may want to refer to this resource from the Educator Site. Click the Implementation tab, search for the blog title [perfecting partner game](https://bridges.mathlearningcenter.org/implementation/blog/perfecting-partner-games-practicing).

Enrichment: See [Game Variations on Work Place Instructions](p. T2)

Child Watching:

- Students who continue to count all the dots, pull aside and practice identifying groups of dots by Quick! Look! Methods from Unit 1 Module 3 Session 4. See [Assessment and Differentiation chart on Work Place Guide](p. T1)
Module 1 - Session 3: Domino Add & Compare

**Access Prior Learning:**
K.CC.6 - Identify if a number is greater than, less than, or equal.
Kindergarten students did have exposure to the symbols as well, but the symbols were not expected in standards for mastery in kindergarten.

**Introducing the Big Idea:**
Students work in phase 1 to deepen their understanding of numbers and their relationships to one another, by introducing the greater than and lesser than symbols.

**Instructional NOTE:**
- If at this point teachers have not established a set of expectations for talking in pairs, consider establishing this today. This supports a culture of discussion where students feel comfortable with an equitable practice for sharing their thinking. Many teachers have found success in assigning partners for math discussions such as partner A & B, peanut butter & jelly partners etc. Support the expectations by modeling how to quickly turn “knee to knee, and eye to eye” with their partner. Directing who speaks first “jelly person first” will help partners manage the dynamics of not controlling the conversation, or sitting back and letting partners do the talking work. During the game, have students share ideas with partners on finding the totals.
- The introduction of the greater than and less than symbols (>,<) will occur, with the method of drawing a single dot, and two dots, then connecting them to create the symbol. It is not recommended to use the “alligator eats the biggest number” method because it becomes a gimmick instead of a focus on number quantity.
- See the Bridges Educator site for this online game to reinforce comparison.

**Enrichment:** See Step 8 (p. 14)

**Child Watching:**
- Watch for students struggling with the symbols. Ask them to circle the greatest number as well, so you can identify if the concept of quantity is a struggle or if using the symbols correctly is the struggle.

Module 1 - Session 4: Our Addition Strategies Chart

**Access Prior Learning:**
Review of Domino Add and Compare game

**Instructional NOTE:**
- Read the Math Practices in Action, and revisit MP.3 poster (p. 18)
- In preparation try to predict which strategies will be shared, and who might fall into the categories of strategies so that you can strategically select which students to share first, next and so forth based on the level of sophistication of strategy. Note the example lists the strategies to expect in order of lower sophistication to higher sophistication (p. 18). Sharing a lower sophistication strategy will ensure that a greater number of students will have access to that strategy.

**Enrichment:** See game variations on the Work Place Guide (p. T5)

**Child Watching:**
- Observe for students using strategies such as “i could see 3 & 3, and that’s 6. Then if you put 1 more on, it’s 7” (p. 17). These are indications of students moving into Phase 2 of fluency development, Reasoning Strategies [deriving a fact from a known fact (doubles)]

Module 1 - Session 5: Domino Magic Squares

**Access Prior Learning:**
Exposure to this idea may have occurred in the context of classroom conversations especially in previous domino lessons, however, it was not a Kindergarten standard and hasn’t been explicitly discovered yet.

**Introducing the Big Idea:**
Students work in phase 1 to deepen their understanding of numbers and their relationships to one another, by developing an understanding of commutativity.

**Instructional NOTE:**
- Read About This Session (p. 22)
- The Commutative Property is an emphasis and a Big Idea for students to grasp. This is the idea that it makes no difference in what order numbers are added, the same addends in a different order still produce the same total. This is an important concept to develop as it is useful in problem solving, building fluency, and mental mathematics when children construct this relationship. Note that a common misconception for students is the attempt to overgeneralize the Commutative Property to subtraction. Teachers can use situations in context and story problems to confront this misconception. (Van de Walle, et al., 2014, pp. 138-139).

**Enrichment:** See Step 9 (p. 24)

**Child Watching:**
- Observe carefully student responses to the question, “Do you think if we did this activity again with two new dominoes, the same thing would happen? Why or why not?” (p. 24)

Module 2 - Session 1: Introducing Double-Flap Dot Cards

**Access Prior Learning:**
Connect to previous day’s work, and highlight any “ah-has” that were discovered around commutativity.

**Developing the Big Idea:**
Students work in phase 1 to deepen their understanding of numbers and their relationships to one another, develop understanding of commutativity.

**Instructional NOTE:**
- This lesson could take extra time, consider stretching it into 2 days and using 1 of your 2 A/D/E days per noted on the pacing framework (assess, differentiate, extend).
- The idea of the “fact family” makes its appearance here. A culturally responsive practice is to relate this concept to students’ real lives by stating that each family is made up of different members. Consider drawing a “structure” on the board, putting the three numbers in the corners of the roof’s triangle, and writing the corresponding facts in the box. If you start the largest number on the top of the house it supports the subtraction equations.
- Resource from the Educator site: Game http://www.abcya.com/addition.htm Supports basic facts

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### Module 2- Session 2: Double-Flap Picture Cards

**Access Prior Learning:**
- Connect to previous day's work, and highlight any “ah-has” that were discovered around commutativity, and number relationships.

**Developing the Big Idea:**
- Students work in phase 1 to deepen their understanding of numbers and their relationships to one another, develop understanding of commutativity.

**Instructional NOTE:**
- Note the Math Practices in Action (p. 13)
- Consider making Math Practice 1 explicit in this lesson, although the materials don't call for it as an emphasis. Pull out the poster and introduce it and hang it with the others.
- See the helpful blog titled The Number Tree Model on the Educator Site by searching under the Implementation Tab. Consider using the terms Number Tree and Fact Families in conjunction with the mathematical term Part/Part Whole to strengthen the understanding of different parts creating a whole.

**Enrichment:**
- Observe for students who may be confused and write equations that do not relate to the numbers on their cards (see step 18)
- Observe for students writing subtraction equations incorrectly without starting with the largest number. Use a concrete situational context to model their equation and ask “Is this true?”
- See above Child Watching note

<table>
<thead>
<tr>
<th>Standard(s)</th>
<th>Access Prior Learning</th>
</tr>
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<tbody>
<tr>
<td>1.OA.1</td>
<td>Supports Kindergarten Counting and Cardinality</td>
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<tr>
<td>1.OA.3</td>
<td>Connect to previous day's work, and highlight any “ah-has” that were discovered around commutativity, and number relationships.</td>
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<td>1.OA.4</td>
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<td>MP.7</td>
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<td>MP.8</td>
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</table>

### Module 2- Session 3: Introducing Work place 2C Sort the Sum

**Access Prior Learning:**
- Supports Kindergarten Counting and Cardinality
- Connect to previous day's work, and highlight any “ah-has” that were discovered around commutativity, and number relationships.

**Developing the Big Idea:**
- Students work in phase 1 to deepen their understanding of numbers and their relationships to one another, develop understanding of commutativity.

**Instructional NOTE:**
- Consider collecting a grade on this Work Place. Use the grading rubric 2C attached to the Suggestions for Reporting Progress documents. Note: Allow several days of exposure to the Work Place before collecting a grade.

**Enrichment:**
- See the blog titled Opportunities to Challenge Learners on the Educator Site under the Implementation tab who may have demonstrated mastery of given skills across Unit 2 and Unit 3.
- See Work Place Guide (p. T7)
- See the blog titled Math Practices in Action (p. 13)

**Child Watching:**
- Observe for students still counting each domino dot by 1s

<table>
<thead>
<tr>
<th>Standard(s)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1.OA.5</td>
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<td>MP.7</td>
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<td>MP.8</td>
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</table>

### Module 2- Session 4: Double-Flap Number Cards

**Access Prior Learning:**
- Double-Flap Picture cards

**Developing the Big Idea:**
- Students work in phase 1 to deepen their understanding of numbers and their relationships to one another, through developing an understanding of commutativity.

**Instructional NOTE:**
- A common misconception a student may develop is the idea that the equal sign represents “the answer is,” much as hitting equals on the calculator creates the final answer. Look for opportunities to write equations with the sum/difference first. Also, when asking for an equivalent equation, (dot cards 3+3 and 5+1) consider showing them as 3+3=5+1 (Van de Walle, 2014, pp. 134 & 230). (See Step 5 for more explanation regarding the equal sign).
- Consider using a balance scale to represent the idea that both sides of the equal sign are equivalent or “the same as”.

**Enrichment:**
- See Step 18 (p. 25)
- Ask students to represent equations in a variety of ways

**Child Watching:**
- Observe students using the equal sign flexibly

<table>
<thead>
<tr>
<th>Standard(s)</th>
<th>Access Prior Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.OA.3</td>
<td>Double-Flap Number Cards</td>
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<td>1.OA.4</td>
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<td>MP.2</td>
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<td>MP.4</td>
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</tbody>
</table>

### Module 2- Session 5: Domino Addition Checkpoint

**Access Prior Learning:**
- All K.CC Standards
- Subitizing

**Developing the Big Idea:**
- Students work in phase 1 to deepen their understanding of numbers and

**Instructional NOTE:**
- The assessment binder under the Bridges Unit Assessment Tab provides the scoring guide for this checkpoint (p. 17). It can also be downloaded from the site https://bridges.mathlearningcenter.org/implementation See the right hand side where it says, “assessment tools.”
- Read the About This Session (p. 28)

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<table>
<thead>
<tr>
<th><strong>Module 3 - Session 1: Domino Flash</strong></th>
<th><strong>Module 3 - Session 2: Dot Doubles</strong></th>
<th><strong>Module 3 - Session 3: Introducing Work Place 2E Spin &amp; Add</strong></th>
<th><strong>Module 3 - Session 4: Introducing Work Place 2F Spin &amp; Subtract</strong></th>
</tr>
</thead>
</table>
| **Access Prior Learning:**  
- Subitizing  
- Counting up | **Access Prior Learning:**  
- Subitizing  
- Counting up | **Access Prior Learning:**  
- Subitizing  
- Counting up | **Access Prior Learning:**  
- Subitizing  
- Counting up |
| **Developing the Big Idea:**  
Some students may still be working in phase 1 to deepen their understanding of numbers and their relationships to one another. However, many students should be transferring into Phase 2 of fluency development, and begin using reasoning strategies. | **Developing the Big Idea:**  
Students moving from Phase 1 to Phase 2 in fluency development, deepen their understanding of numbers and their relationships to one another by using reasoning strategies. | **Developing the Big Idea:**  
Students moving from phase 1 to phase 2 in fluency development, deepen their understanding of numbers and their relationships to one another by using reasoning strategies. | **Developing the Big Idea:**  
Students moving from phase 1 to phase 2 in fluency development, deepen their understanding of numbers and their relationships to one another by using reasoning strategies. |
| **Instructional NOTE:**  
- Read the Math Practices in Action (p. 6)  
- When creating the strategies chart, rather than just writing the equation (the abstract form), consider drawing a representation of the strategy. Frequently modeling how to represent math thinking by drawing an illustration will support students’ development from the concrete to the abstract. | **Instructional NOTE:**  
- Read About This Session (p. 8)  
- Enrichment: Game Variation on Work Place Instructions (p. T5) | **Instructional NOTE:**  
- Enrichment: See Step 11 (p. 14) and Work Place Instructions Game Variations (p. T7) | **Instructional NOTE:**  
- The action of counting backwards can be more of a struggle for students, as they typically do not have as much experience. When using counting back with subtraction, students have to manage counting backwards while keeping track of how many counts back they made (thus counting up simultaneously). Consider using a number line to support, but watch for students actually counting the number they start with resulting in being off by one number. They need to count the “hops” or the spaces in-between, rather than all the numbers. See step 4 (p. 16).  
- Consider collecting a grade on this Work Place. Use the grading rubric 2C attached to the Suggestions for Reporting Progress documents. Note: Allow several days of exposure to the Work Place before collecting a grade. |
| **Enrichment:**  
- Use the scoring guide to formatively assess 1.OA.6 & 1.NBT.3 | **Child Watching:**  
- Observe for students struggling to model equations on the number rack or represent them with written equations  
- Observe for students who made need another “flash” or a slightly longer “flash” | **Child Watching:**  
- Observe for students struggling with counting on  
- Observe for students struggling to double the numbers (use unifix cubes, or practice counting on using the same dots) | **Enrichment:**  
- See the Work Place Instructions Game Variations (p. T10)  
- **Child Watching:**  
  - Observe for students counting the beginning number twice when counting backwards  
  - Observe for students struggling to orally count backwards |
Module 3- Session 5: Unit 2 Assessment

<table>
<thead>
<tr>
<th>Standards</th>
<th>Access Prior Learning:</th>
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<tbody>
<tr>
<td>1.OA.1</td>
<td>Strategies used throughout Unit 2 for adding and finding missing addends.</td>
</tr>
<tr>
<td>1.OA.3</td>
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<td>MP.1</td>
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<tr>
<td>MP.4</td>
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</tbody>
</table>

Developing the Big Idea: Students moving from phase 1 to phase 2 in fluency development, deepen their understanding of numbers and their relationships to one another by using reasoning strategies.

Instructional NOTE: See Unit 2 Assessment Scoring Guide in Assessment Binder under the Unit Assessment Tab (p. 20).

- Consider using the Grade 1 Math Progress Report: Quarter 1 documents in your assessment binder (p. 36) under the Assessment Overview tab as a tool for report cards. Pay close attention to how the standards are broken down into chunks. For example, 1.OA.6 is adjusted to Adds and subtracts to 10.
- Students may struggle with problem 2, which asks them to write a story problem to match an equation. Students have not had many opportunities to practice this independently. Use this formatively to identify student strengths and needs and support over time.

Enrichment:

Child Watching: See Support and Intervention page in Assessment Binder (p. 13)

Observe for and consider using intervention resources if you see students struggling with:
- Counting forward to 30 from a number other than 1
- Counting backward to 0 from any number up to and including 10
- Representing addition and subtraction with objects, fingers, or drawings
- Solving addition and subtraction story problems within 10 by using objects or drawings.
- Consider intervention resources if you see the above

Standards listed in bold indicate a focus of the lesson.

References


First Grade Unit 3: Adding, Subtracting, Counting & Comparing

Big Conceptual Idea: K-5 Progression on Counting and Cardinality and Operations and Algebraic Thinking (pp. 12-17), K-5 Progression on Number and Operations in Base Ten (pp. 6-7)

Throughout the unit the Math Practices are introduced and used. Find student friendly posters here.

Links may require you being logged into your Bridges Educator Site. If the link does not work for you, copy and paste the http address into a browser.

<table>
<thead>
<tr>
<th>Mathematical Background:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read Bridges Unit 3 Overview pages (pp. i-viii).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit Essential Question: For Teacher Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are efficient strategies for key number facts for single-digit addition and subtraction?</td>
</tr>
</tbody>
</table>

**Instructional note:**

This unit’s Big Idea focuses on Phase II of fluency development, as opposed to Unit 1 and Unit 2 where the focus was on Phase I (constructing meaning and counting strategies). Phase II in this unit works on the development of reasoning strategies to help students work towards security of key number facts up to 10, and begin to form number understanding of number relationships to 20. Students should be able to “see” subsets of numbers within larger numbers, called hierarchical inclusion, which includes the concept of part-part whole reasoning. The Nevada Academic Content Standards (NVACS) definition of procedural fluency is the ability to apply procedures flexibly, accurately, efficiently, and appropriately; to transfer reasoning strategies to different problems and contexts; to build or modify procedures from other procedures; and to recognize when one strategy or procedure is more appropriate than another (2010, p. 6). Developing this flexibility and deepening the understanding of relationships between numbers will result in students becoming more likely to have accurate and flexible recall of all single-digit number facts. The expectation for Phase II fluency is using a strategy to determine a solution within about 3 seconds, not “just memorize the facts” and be able to recall them instantly. Research indicates that teaching “drill and kill” procedures to be implemented with speed and accuracy is not successful for most. “For some people, learning mathematics as procedures has been successful; but for the majority of our nation, knowledge of mathematical rules has not allowed them to use math confidently in their daily lives” (Parrish, 2010, p. 4). This also causes math anxiety, as discussed in Unit 2 (Boaler, 2016).

In Module 1 the Commutative Property (numbers can be added in any order) is introduced to students. This Big Idea is expanded on using 2 addends in the game Drop the Beans. Eventually this idea needs to extend to “Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20” (NVACS, 2010, 1.OA.2). As students develop reasoning strategies within fluency development, the power of the property becomes more evident when they are faced with 3 addends. Students find that rearranging the 3 addends (applying the Associative Property), lends itself to making anchors of 5 or 10. Students would benefit from additional learning opportunities in applying the Commutative and Associative Properties to 3 addends. Teachers need to keep this trajectory of learning in the forefront of their minds to capitalize on any opportunities to bring students to this understanding. Several lessons throughout this Unit will have suggestions to extend this work, using the built in A/D/E days.

It is important to create a culture for effective classroom discussion in the sharing of student strategies. “Mathematical discourse includes the purposeful exchange of ideas through classroom discussion, as well as through other forms of verbal, visual and written communication” (NCTM, 2014, p. 29). At this point in the year students may be explaining their thinking by showing their number rack or using unifix cubes and talking through their method. Standards focus includes: 1.OA.1, 1.OA.3, 1.OA.4, 1.OA.5, 1.OA.6, 1.OA.7, 1.OA.8, 1.NBT.1, 1.NBT.2, 1.NBT.3, 1.NBT.4, 1.MD.4. This standard load may feel heavy, however, as Van de Walle, Karp, Lovin, & Bay-Williams state, “There is no need to separate place-value instruction from computation instruction. Children’s efforts with the invention of their own computation strategies will both enhance their understanding of place value and provide a firm foundation for flexible methods of computation” (2014, p. 176).

Unit 3 will be reinforcing and extending important place value understandings introduced in kindergarten as ten ones and some more. As stated in the Progression Documents:
“In first grade, students learn to view ten ones as a unit called a ten. The ability to compose and decompose this unit flexibly and to view the numbers 11 to 19 as composed of one ten and some ones allows development of efficient, general base-ten methods for addition and subtraction. Students see a two-digit numeral as representing some tens and they add and subtract using this understanding” (K-5 Progression on Number and Operations in Base Ten, p. 6).

When students are asked later in the year to add two 2-digit numbers, if this understanding of the teens being a ten and some more is not secured, they will struggle. This Unit’s child watching opportunities provides space to observe students with secure understanding and those struggling with the kindergarten standard K.NBT.1 and provide intervention as necessary.

### Essential Academic Vocabulary

#### New Academic Vocabulary:
Use these words consistently during instruction. *a Word Resource Card is available*

<table>
<thead>
<tr>
<th>New Academic Vocabulary:</th>
<th>Review Vocabulary:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add*</td>
<td>Greater than*</td>
</tr>
<tr>
<td>Addition</td>
<td>Half*</td>
</tr>
<tr>
<td>Compare*</td>
<td>Less than*</td>
</tr>
<tr>
<td>Difference*</td>
<td>Odd</td>
</tr>
<tr>
<td>Double</td>
<td>Ones*</td>
</tr>
<tr>
<td>Equal*</td>
<td>Subtract*</td>
</tr>
<tr>
<td>Equation*</td>
<td>Subtraction</td>
</tr>
<tr>
<td>Even</td>
<td>Sum or Total*</td>
</tr>
<tr>
<td>Graph</td>
<td>Tens</td>
</tr>
</tbody>
</table>

**Additional terminology that students may need support with:** strategies, minus, plus, combinations, problem solving

Standards listed in bold indicate a focus of the lesson.

### Standards

<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><strong>Module 1- Session 1: Introducing Work Place 3A Drop the Beans</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.OA.3</td>
<td>Access Prior Learning:</td>
<td>Instructional NOTE:</td>
</tr>
<tr>
<td>1.OA.6</td>
<td>- Subitizing</td>
<td>- Accurate vocabulary modeling of the term “expression” and “equation” will support students.</td>
</tr>
<tr>
<td>1.OA.8</td>
<td>- All Kindergarten Counting and</td>
<td>An expression is just the addends. (3+4) whereas an equation includes the equal sign and</td>
</tr>
<tr>
<td>1.MD.4</td>
<td>Cardinality Standards</td>
<td>the sum (3+4=7).</td>
</tr>
<tr>
<td></td>
<td>Developing the Big Idea:</td>
<td>- Consider utilizing the Work Place Sentence Frames found on the Educator Site to support</td>
</tr>
<tr>
<td></td>
<td>Students will apply the Commutative</td>
<td>students’ communication.</td>
</tr>
<tr>
<td></td>
<td>Property (it doesn’t matter which order two numbers are added), and strategies such as</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“counting on” to develop reasoning</td>
<td>“Drop the Beans” is recommended as a Work Place</td>
</tr>
<tr>
<td></td>
<td>strategies for math fluency.</td>
<td>grade to enter in Infinite Campus (see Q2 Grading</td>
</tr>
<tr>
<td></td>
<td></td>
<td>suggestion document).</td>
</tr>
</tbody>
</table>

**Enrichment:** Students can choose different target sums of 7, 8, 9, or 10. If you have students far beyond this in their math fluency, you can increase the target sum appropriately, and have them create their own game board.

**Child Watching:**
- A teacher tool that may be useful is the Work Place Differentiation chart found on page 26 in your Assessment Binder under the tab “Bridges Unit Assessment.” This will guide you on your Work Place Child Watching.
- This work place is the perfect opportunity to support perceptual and conceptual subitizing. Consider covering the beans after a short time (3 seconds), then asking students to tell what they saw. Uncover the beans and discuss how they might see groups of beans without counting all (perceptual subitizing) and how they might combine groups together to reach a total (conceptual subitizing).
## Module 1- Session 2: Introducing Work Place 3B Make the Sum

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
<th>Instructional NOTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.OA.3 1.OA.5 1.OA.6</td>
<td>• The big idea of Commutativity and Associativity makes a strong appearance in this lesson. Push students to see that changing the order of numbers (Commutative Property) around while adding does not change the total and that we can add any two adjacent numbers together and the sum does not change. Help students see that in this is a reasoning strategy- to group numbers in easier to add groups. For example, if they pull a 2, 4, 6, &amp; 2, they can move the 2 cards next to each other and have a double. 2+2. Then students will have 4+4 which is another double. Teachers should capitalize on this instructional opportunity to discuss this idea deeply. You may consider extending this lesson into 2 days to create more instructional opportunities to address the Associative and Commutative Properties.</td>
</tr>
<tr>
<td>MP.2 MP.7</td>
<td>• See the online digital tools for “Make the Sum”. Note the second page has the cards to “draw” <a href="https://bridges.mathlearningcenter.org/digital-materials/work-place-3b-make-sum">https://bridges.mathlearningcenter.org/digital-materials/work-place-3b-make-sum</a></td>
</tr>
<tr>
<td>Developing the Big Idea:</td>
<td>• Some students may need support noticing that a sum can be created using more than two cards.</td>
</tr>
<tr>
<td>Students will apply the commutative and associative properties and use strategies such as “counting on” within 10 to develop reasoning strategies for math fluency.</td>
<td>Enrichment: See Game Variations A, B, C &amp; D on the Work Place Guide (p. T9)</td>
</tr>
<tr>
<td><strong>Session 2:</strong> Introducing Work Place 3B Make the Sum</td>
<td><strong>Child Watching:</strong></td>
</tr>
<tr>
<td></td>
<td>• Watch for students who are still counting each dot on the cards, ask them if they have to count them all in order to know how many dots there are. Practice with a few quick flash looks to help them subitize.</td>
</tr>
<tr>
<td></td>
<td>• Watch for students who move cards around, applying the commutative and associative property, to add and highlight this strategy to other students.</td>
</tr>
</tbody>
</table>

## Module 1- Session 3: Doubles, Evens & Odds

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
<th>Instructional NOTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.OA.3 1.OA.6</td>
<td>• Read the Math Practices in Action in the margin (p. 16)</td>
</tr>
<tr>
<td>MP.2 MP.7</td>
<td>• Note that the idea of even and odd numbers is not a 1st grade standard, it is a 2nd grade standard. Although the exposure to this will be helpful in the transition to 2nd grade, the point of this lesson is to focus on the strategy use of doubles plus one, and doubles minus one as a reasoning strategy to utilize in developing math fluency.</td>
</tr>
<tr>
<td>Developing the Big Idea:</td>
<td>• Research supports the using of fingers to create perception and representation of numbers as it develops a specific region of our brain, the somatosensory finger area. “It is important to remove the stigma from counting on fingers and to see this activity as inherently important and valuable” (Boaler, n.d.). Encourage continued finger use to develop this finger perception, and refrain from developing a climate where this is seen in a negative way. “6-year old’s finger representation was a better predictor of future mathematics success than their scores on tests of cognitive processing” (Boaler, n.d.).</td>
</tr>
<tr>
<td>Students will apply the commutative property and use strategies such as doubles within 10 to develop reasoning strategies for math fluency.</td>
<td>Enrichment: See Step 16 (p. 18) Game Variations A on the Work Place Guide (p. T12)</td>
</tr>
<tr>
<td><strong>Session 1:</strong> Access Prior Learning</td>
<td><strong>Child Watching:</strong></td>
</tr>
<tr>
<td></td>
<td>• Some may have developed a working strategy of using doubles for adding.</td>
</tr>
<tr>
<td></td>
<td><strong>Child Watching:</strong></td>
</tr>
<tr>
<td></td>
<td>• Watch for students who are struggling to double numbers or add or subtract 1. Support them using the differentiation ideas (p. T11).</td>
</tr>
</tbody>
</table>

## Module 1- Session 4: Introducing Work Place 3C Doubles Plus or Minus One

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
<th>Instructional NOTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.OA.5 1.OA.6</td>
<td>• See the online digital tools. Note the second page has the digital spinner (Copy and paste if link doesn’t work). <a href="https://bridges.mathlearningcenter.org/digital-materials/work-place-3c-doubles-plus-or-minus-one">https://bridges.mathlearningcenter.org/digital-materials/work-place-3c-doubles-plus-or-minus-one</a></td>
</tr>
<tr>
<td>MP.2 MP.7</td>
<td><strong>Enrichment:</strong> See Step 5 (p. 21)</td>
</tr>
<tr>
<td>Developing the Big Idea:</td>
<td><strong>Child Watching:</strong></td>
</tr>
<tr>
<td>Students will apply the commutative property and use strategies such as doubles within 10, and making 10s to develop reasoning strategies for math fluency.</td>
<td>• Observe for reasoning strategies being used. Who is counting all by 1s? Who starts from a number and counts on by 1s? Who makes a 10 (5)? Who is counting back? Have students share strategically, gradually building up from a lower level of sophistication in strategy to a higher level.</td>
</tr>
<tr>
<td><strong>Session 3:</strong> Activity</td>
<td>• Students may be confused with the two steps of the game because this is the first game that has two-step directions. If this occurs, support students by helping them notice that if their answer is not on the board they missed a step. Be prepared to reteach this game. Offer peer support as needed to students.</td>
</tr>
</tbody>
</table>
### Module 1- Session 5: Number Rack Story Problems

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
<th>Instructional NOTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.OA.1</td>
<td>Revisit the <a href="#">poster</a> for MP.1 and encourage a focus on making sense of a problem.</td>
</tr>
<tr>
<td>1.OA.4</td>
<td>Read the About This Session note in the margin (p. 24)</td>
</tr>
<tr>
<td>1.OA.7</td>
<td>This lesson is a great opportunity to reinforce the meaning of the equal sign, not as “the answer” but as a symbol for “the same as.” This idea can be visualized by students using a balance scale and cubes. Consider showing how 5+3 cubes on one side balance with 4+4 cubes on the other side.</td>
</tr>
<tr>
<td>1.OA.8</td>
<td>• Consider splitting this lesson into 2 days and utilizing one of your 2 A/D/E days to extend this lesson.</td>
</tr>
<tr>
<td>MP.1</td>
<td>• Refer to page 88 in the 2010 NVACS (right). This chart shows how the complexity of problems can increase from left to right and top down. Note the problems grow in complexity from 1 to 2, then to 3, in a downwards movement. Your students may struggle with this quick succession. Consider framing your own problems such as a Take From Result Unknown type between 1 &amp; 2. For example, Amber gathered 20 acorns and put them by a tree, a squirrel ran away with 7. How many were left? Then continue with problem 2. You can also move from left to right across the top. Do problem 1, followed with your own creation for Add To Change Unknown, (11 acorns fell off the tree onto the ground. The wind picked up and more fell. Now there are 19 acorns. How many fell to the ground after the wind blew?) Then try problem 4. Use this chart to help you create more problems.</td>
</tr>
<tr>
<td>MP.4</td>
<td>Enrichment: Increase the complexity of problem types or quantities within the problem for students who need more of a challenge.</td>
</tr>
</tbody>
</table>

#### Developing the Big Idea:
Students will make sense of a problem and use the strategies they’ve been working with (make 10s, doubles, double +/-, counting on, counting back) to continue developing reasoning strategies for math fluency.

#### Instructional NOTE:
- See the online digital tools for this game. [https://bridges.mathlearningcenter.org/digital-materials/work-place-3d-tower-race](https://bridges.mathlearningcenter.org/digital-materials/work-place-3d-tower-race)
- This game may cause some confusion and students may struggle. Keep in mind the big idea of this game is to give students the opportunity to engage in decomposing numbers. Modify rules as needed.
- Enrichment: See the Work Place Guide Assessment & Differentiation Chart (p. T1)

#### Child Watching:
- Help students act out the problems if they struggle with understanding what the problem is asking. Consider having students’ direct model with concrete manipulatives.
- What strategies are they using?

### Module 2- Session 1: Introducing Work Place 3D Tower Race

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
<th>Instructional NOTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.OA.6</td>
<td>• See the online digital tools for this game. <a href="https://bridges.mathlearningcenter.org/digital-materials/work-place-3d-tower-race">https://bridges.mathlearningcenter.org/digital-materials/work-place-3d-tower-race</a></td>
</tr>
<tr>
<td>1.OA.8</td>
<td>• This game may cause some confusion and students may struggle. Keep in mind the big idea of this game is to give students the opportunity to engage in decomposing numbers. Modify rules as needed.</td>
</tr>
<tr>
<td>1.MP.2</td>
<td>Enrichment: See the Work Place Guide Assessment &amp; Differentiation Chart (p. T1)</td>
</tr>
<tr>
<td>1.MP.7</td>
<td>Child Watching:</td>
</tr>
<tr>
<td></td>
<td>• Observe for students struggling to make combinations to 10.</td>
</tr>
</tbody>
</table>

#### Developing the Big Idea:
Students will apply the associative property to add three numbers, they will rely on strategies such as making 10s to develop reasoning their strategies for math fluency.

#### Instructional NOTE:
- If your students need another 2 seconds, show them again. However, refrain from just showing them the beads for a longer time. This will encourage them to count, which is what we are moving away from. Rely on other students sharing their strategies for “seeing” the numbers to support those struggling. |
- This lesson could take extra time. Consider stretching it into two days, and using one of your A/D/E days.

#### Enrichment:
See the extensions in the margin and consider increasing the quantity of beads within 20 if your students are ready for it (p. 13).

#### Child Watching:
- Observe for students struggling to subitize, trying to count all beads by ones. See the support note (p. 13).

### Module 2- Session 2: Flash Attack

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
<th>Instructional NOTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.OA.6</td>
<td>• Subitizing with dot cards</td>
</tr>
<tr>
<td>MP.5</td>
<td>If your students need another 2 seconds, show them again. However, refrain from just showing them the beads for a longer time. This will encourage them to count, which is what we are moving away from. Rely on other students sharing their strategies for “seeing” the numbers to support those struggling.</td>
</tr>
<tr>
<td>MP.7</td>
<td>• This lesson could take extra time. Consider stretching it into two days, and using one of your A/D/E days.</td>
</tr>
</tbody>
</table>

#### Developing the Big Idea:
Students will use subitizing skills and their developing reasoning strategies to continue developing math fluency.

#### Instructional NOTE:
- See the extensions in the margin and consider increasing the quantity of beads within 20 if your students are ready for it (p. 13).

#### Enrichment:
See the extensions in the margin and consider increasing the quantity of beads within 20 if your students are ready for it (p. 13).

#### Child Watching:
- Observe for students struggling to subitize, trying to count all beads by ones. See the support note (p. 13).
### Module 2- Session 3: Make Ten

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.OA.1</td>
<td>A child can add within 10.</td>
</tr>
<tr>
<td>1.OA.3</td>
<td>A child can understand and apply properties of operations and the relationship between addition and subtraction.</td>
</tr>
<tr>
<td>1.OA.6</td>
<td>A child can add and subtract within 10.</td>
</tr>
<tr>
<td>1.OA.8</td>
<td>A child can mentally add 10 to the number and subtract 10 from numbers less than or equal to 90.</td>
</tr>
<tr>
<td>1.NBT.4</td>
<td>A child can understand place value of digits.</td>
</tr>
</tbody>
</table>

**Access Prior Learning:**
- K.OA.3- Decompose numbers less than or equal to 10 into pairs in more than one way.

**Developing the Big Idea:**
Students will work with their growing repertoire of reasoning strategies to develop more secure footing in fluency within 10.

**Instructional NOTE:**
- Read the About this Session in the margin (p. 16)
- Consider encouraging students to write their equations horizontally as well as vertically on the student workbook pages 13-14.
- Consider choosing a few students who showed their work on #4 to share. This will help other students see ideas on communicating their thinking in writing.

**Enrichment:**
- See Step 3 - extend to combinations of 15, then 20 (p. 16).
- Challenge problem # 5 of student book (p. 14)

**Child Watching:**
- Observe for students struggling with combinations within 10. Adjust the quantity to within 5.

### Module 2- Session 4: Hot Air Balloons

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.OA.1</td>
<td>A child can add within 10.</td>
</tr>
<tr>
<td>1.OA.3</td>
<td>A child can understand and apply properties of operations and the relationship between addition and subtraction.</td>
</tr>
<tr>
<td>1.OA.6</td>
<td>A child can add and subtract within 10.</td>
</tr>
<tr>
<td>1.OA.7</td>
<td>A child can work with equal groups of objects to gain foundations for multiplication.</td>
</tr>
<tr>
<td>1.OA.8</td>
<td>A child can mentally add 10 to the number and subtract 10 from numbers less than or equal to 90.</td>
</tr>
</tbody>
</table>

**Access Prior Learning:**
- Connect back to Module 1 Session 5, Number Rack Stories.
- Schema about hot air balloons

**Developing the Big Idea:**
Students will make sense of a problem and use the strategies they've been working with to continue developing reasoning strategies for math fluency.

**Instructional NOTE:**
- The Assessment Binder under the Bridges Unit Assessment Tab provides the scoring guide for the Combinations of Ten checkpoint (p. 29). It can also be downloaded from the site https://bridges.mathlearningcenter.org/implementation. See the right hand side where it says, “assessment tools.”

- To continue providing more learning opportunities around 1.OA.3, consider using the “Hot Air Balloon” problem to create another story problem that includes 3 addends. For example, “There are 10 hot air balloons. Some are black, some are white, but others are red. Create an equation representing the possible numbers of each color. Explain your equation with objects, drawings and equations.” Other variations of this problem could include providing students with the numbers of each color balloon and asking students to find the sum. There are 3 red, 5 white, and 2 black balloons. How many balloons are there total? Choose numbers that encourage students to find anchors of 5 and 10, and order them in ways that encourage rearrangement.

- Consider modeling multiple ways to show a number equation for each discussed balloon race problem. 10 - ?= 8, 10-2= ?, 10= 2 +8 and so on.

- Consider having multiple tools available to choose from. Students may find working with unifix cubes or number racks helpful. Students should be given choices in their tool selection regularly.

- Remind students of Math Practice 1. Deliberately help them understand that mathematicians make sense of a problem by visualizing or acting the problem out by modeling with mathematics.

**Enrichment:** Work Place Game Variations (see each Work Place Guide)

**Child Watching:**
- Any students who appear to not be secure in their working knowledge of key number facts and fact strategies for single-digit addition and subtraction may need extra teacher support. See the Support and Intervention page under the Bridges Unit Assessment tab (p. 35).
- Use the Combinations of Ten Checkpoint to formatively assess students.

### Module 2- Session 5: Number Rack Subtraction

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.OA.1</td>
<td>A child can add within 10.</td>
</tr>
<tr>
<td>1.OA.6</td>
<td>A child can add and subtract within 10.</td>
</tr>
<tr>
<td>1.NBT.3</td>
<td>A child can understand place value of digits.</td>
</tr>
<tr>
<td>1.MD.3</td>
<td>A child can work with equal groups of objects to gain foundations for multiplication.</td>
</tr>
<tr>
<td>1.MD.4</td>
<td>A child can work with time and money.</td>
</tr>
</tbody>
</table>

**Access Prior Learning:**
- K.OA.2-Solve addition and subtraction word problems, and add and subtract within 10.

**Developing the Big Idea:**
Students will make sense of a problem and use the strategies they've been working with to continue developing reasoning strategies for math fluency.

**Instructional NOTE:**
- See the online Digital Display materials here to aide in introducing Work Place 3E. Note that 3E is a suggested Work Place for taking a grade. See the rubric in the Grading Suggestions documents.
- Use the Number Rack app to modify the bead string to use only one string if needed.
- Consider making explicit use of the Difference Word Resource Card and posting this vocabulary in an easy access location.
- The Number Rack Subtraction problems delve directly into Compare Difference Unknown problem types, as seen again in the NVACS (2010, p. 88) or in Progression on Counting and Cardinality and Operations and Algebraic Thinking (p. 7). Remember that these are some of the most difficult problem types for students to work with as there is no action to model. “The challenge of comparison problems comes from the fact that two quantities are being described by language that can be complex for children. Fewer, less than, more, bigger and greater than are the terms typically used to describe the...
Module 3- Session 1: Ten & Some More

Access Prior Learning:
- K.CC – Know number names and count the sequence
- K.NBT - Work with numbers 11-19 to gain foundations for place value

Developing the Big Idea:
Students will deepen their understanding of numbers and their relationships to one another, by focusing on place value through comparing numbers and their quantities.

Instructional NOTE:
- It is important to simultaneously refer to numbers with their numeral word, as well as in 10s and 1s. For example, frequently refer to thirteen as both 13 and “one ten and three ones.”  As indicated in the K-5 Progression on Number and Operations in Base Ten, “The number words continue to require attention at first grade because of their irregularities. Many decade numbers sound much like teen number words. For example, ‘fourteen’ and ‘forty’ …… and because the number words ‘eleven’ and ‘twelve’ do not cue students that they mean ‘1 ten and 1 one’” (pp. 6-7).

Enrichment: Work Place Game Variation (p. T7)

Child Watching:
- Use the 3E rubric to assess for students struggling to add numbers on the dice, or writing the comparison symbols.

Module 3- Session 2: Fifty or Bust! Day 1

Access Prior Learning:
- K.CC – Know number names and count the sequence
- K.NBT - Work with numbers 11-19 to gain foundations for place value

Developing the Big Idea:
Students will deepen their understanding of numbers and their relationships to one another, by focusing on place value through comparing numbers and their quantities.

Instructional NOTE:
- The questions used throughout the modeling of the game are important to use during game play. To get the most out of the game ask students “How many more do you have?” “How many more do you need to get to 50?” and/or “How many to catch up?”

Enrichment: Ask students to record the equations as they answer the questions throughout game play.

Child Watching:
- Observe for students who may be struggling with identifying 10s and 1s, or representing numbers with 10s and 1s separately, support them by having them make the number in ones only, and physically construct a tower of 10.

Module 3- Session 3: Fifty or Bust! Day 2

Access Prior Learning:
- K.CC – Know number names and count the sequence
- K.NBT - Work with numbers 11-19 to gain foundations for place value

Developing the Big Idea:
Students will deepen their understanding of numbers and their relationships to one another, by focusing on place value through comparing numbers and their quantities.

Instructional NOTE:
- Carefully model out loud your thinking and strategy as you play the game.
- See this game from the resources on the Bridges Educator site as another tool.
- See Math Practices in Action, p. 17

Enrichment: Playing with cards face down in the pocket chart.

Child Watching:
- Observe for students operating on 10s and 1s separately. Do they count by 10s then add on by 1s, or are they counting every cube individually by 1s? Do the students color in the next 10 train each time, even if it means leaving holes to fill in later?  (See Step 9)

Module 3- Session 4: Introducing Work Place 3F Fifty or Bust!

Access Prior Learning:
- K.CC – Know number names and count the sequence
- K.NBT - Work with numbers 11-19 to gain foundations for place value.

Developing the Big Idea:
Students will deepen their understanding of numbers and their relationships to one another, by focusing on place value through comparing numbers and their quantities.

Instructional NOTE:
- See the online Digital Display materials here to aide in introducing Work Place 3F.
- Note that 3F is a suggested Work Place for taking a grade. See the rubric in the Grading Suggestions documents.

Enrichment: See game variations on Work Place Guide (p. T5)

-continues on next page-
### Module 3 - Session 5: Unit 3 Assessment

**Access Prior Learning:**
- K.CC - Know number names and count the sequence
- K.NBT - Work with numbers 11-19 to gain foundations for place value.

**Developing the Big Idea:**
Students will utilize their growing repertoire of reasoning strategies to solve problems within 10. Some may still be in Phase 1 and using direct modeling and counting strategies. Some may have moved towards reasoning strategies in Phase 2. Students may move fluidly between the phases.

**Instructional NOTE:**
- The Assessment Binder under the Bridges Unit Assessment Tab provides the scoring guide for the for Unit 3 Assessment (p. 32). It can also be downloaded from the site and scores entered digitally to create a color-coded spreadsheet. See the right hand side where it says, "assessment tools."
- This is the teacher’s opportunity to formatively assess students’ use of reasoning strategies, and determine what phase students are working in towards their fluency development.
- There may be confusion in the practice problem because 5 beads are showing and 5 beads are hidden. Consider doing an additional practice problem to reinforce students are determining the beads hidden rather than the amount shown.
- Section 2 of the assessment asks students to draw a line indicating the last answer they were able to complete within 3 minutes. The purpose of this is to help teachers determine who is using counting strategies rather than using reasoning strategies. Throughout the unit, teachers have been child-watching and likely have a strong idea through anecdotal observations of the strategy use by students. If your child watching observations have provided you with enough information to determine student strategy use, it may not be necessary to time them on this section of the assessment.

### Module 4 - Session 1: Equivalent Names: Sixes & Sevens

**Access Prior Learning:**
- Several standards in Kindergarten call for “drawing an equation.” (NVACS, 2010, K.OA.3, K.OA.4, K.NBT.1)

**Developing the Big Idea:**
Students will deepen their understanding of numbers and their relationships to one another by applying the commutative, and associative properties and to create an understanding of equivalent combinations which will support them in using reasoning strategies to derive facts using known facts.

**Instructional NOTE:**
- This session may need additional time, as it provides great opportunities to build upon the Commutative and Associative Properties Extend to two (2) days (use 1 A/D/E day).
- **Day 1:**
  - Complete lesson through step 13. Focusing on the big idea that there are multiple equivalent names, and that the equal sign means “the same as.”
  - Remember to use the term expression (5+2) to show the operation, but the term equation (5+2=7) to represent the idea of equivalence. Phrases such as “the same number as” and “becomes” can help solidify the understanding of the equal sign definition.
  - Consider pulling out a balance scale again to represent how each side is the same.
  - Save these trains to continue with Day 2.
- **Day 2:**
  - Use all trains with three colors. Continue to develop students’ understanding of the Commutative and Associative Properties by having students rearrange the 3 colors in different orders and record different possible equations for each train. Class discussion can center around the orders that are easier to add.

**Enrichment:**

**Child Watching:**
- Observe for students who understand and utilize the idea of commutativity (3+4, 4+3)
- Observe for students exploring 3 addends and using associativity (the order does not matter in addition).

### Module 4 - Session 2: Equivalent Names: Nines & Tens
### Module 4: Session 3: Comparing Cube Trains

**Access Prior Learning:**
- Remind students of previous learning utilizing the comparison symbols (<, >, =) from the 50 or Bust Work Place

**Developing the Big Idea:**
Students will deepen their understanding of numbers and their relationships to one another by focusing on quantity of number.

**Instructional NOTE:**
- Utilize the dot method for drawing the greater than, less than symbols rather than the “alligator gimmick” to keep the focus on the mathematics. The larger quantity of dots (2) is near the greater number.
- Have unifix cube trains available for students who need to model this in a concrete way and directly compare the sets.

**Enrichment:**
Using 3 colors to create 3 addends

**Child Watching:**
- Observe for students exploring 3 addends and using associativity (the order does not matter in addition).

### Module 4: Session 4: Comparing Cube Towers

**Access Prior Learning:**
- Remind students of previous learning utilizing the comparison symbols (<, >, =) from the last session

**Developing the Big Idea:**
Students will deepen their understanding of numbers and their relationships to one another by focusing on quantity of number.

**Instructional NOTE:**
- Support students by explicitly using the vocabulary resource card for difference. Note that difference in this lesson is comparison, not the action of removing or “taking away” although it is represented with a minus symbol.
- The need to direct model comparison problems supports students as they work on these problem types. Remember that comparison/difference unknown problems are some of the most difficult problem types 1st graders will encounter. See page 88 in the NVACS for this table (2010).

**Enrichment:**
See Step 14 (p. 22)

**Child Watching:**
- Observe for students struggling and reduce the quantity to 6 or less. Students may also find it useful to match or directly compare connected cubes (“match, match, match, leftovers”). Some students may disconnect the towers and pair together a cube from each tower and then count the ‘leftovers’ or remaining cubes in order to find the difference.

### Module 4: Session 5: Number Rack Detectives

**Access Prior Learning:**
- Several standards in Kindergarten call for “drawing an equation.” (K.OA.3, K.OA.4, K.NBT.1)
- Recall the work done the previous lesson on 6s and 7s
- Review terms true and false

**Instructional NOTE:**
- This session may need additional time. It provides great opportunities to build upon the Commutative and Associative Properties. Extend to two (2) days (use 1 A/D/E day).
- Having students examine equations and identifying True/False statements takes the task a step farther by encouraging them to evaluate the equations. You may need to discuss the meaning of true and false beforehand.
- The balance scale can be helpful again to determine true/false.
- This online resource suggested on the Bridges Educator Site provides a useful digital scale (Select the "Number Balance Activity").

**Day 1:**
- Steps 1-19

**Day 2:**
- Use all trains with three colors. Continue to develop students’ understanding of the Commutative and Associative Properties by having students rearrange the 3 colors in different orders and record different possible equations for each train. Class discussion can center around the orders that are easier to add.

**Enrichment:**
Using 3 colors to create 3 addends

**Child Watching:**
- Observe for students exploring 3 addends and using associativity (the order does not matter in addition).
- Observe for students exploring 3 addends and using associativity (the order does not matter in addition).

**Instructional NOTE:**
- This online resource suggested on the Bridges Educator Site provides a useful digital scale (Select the "Number Balance Activity").
Developing the Big Idea:

Students will utilize their growing repertoire of reasoning strategies to solve problems within 10, solving for the unknown. Some may still be in Phase 1 and using direct modeling and counting strategies. Some may have moved towards reasoning strategies in Phase 2. Students may move fluidly between the phases.

Standards listed in **bold** indicate a focus of the lesson.

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**References**


First Grade Unit 4: Leapfrogs on the Number Line

Big Conceptual Idea

K-5 Progression on Counting and Cardinality and Operations and Algebraic Thinking (pp. 12-17), K-5 Progression on Number and Operations in Base Ten (pp. 6-7), K-6 Progression on Measurement and Data (Measurement Part) (pp. 8-11)

Throughout the unit the Math Practices are introduced and used. Find student friendly posters here.

Links may require you being logged into your Bridges Educator Site. If the link does not work for you, copy and paste the http address into a browser.

| Mathematical Background: Read Bridges Unit Overview pages (pp. i-vi). | Unit Essential Question: What are strategies for counting past 100 to 120? What strategies help us add and subtract numbers to 100? How are these strategies be used flexibly, accurately, efficiently and appropriately for the numbers in the problem? |

Instructional note:

This unit's Big Idea focuses on Phase II of fluency, developing reasoning strategies to help students use flexible, accurate, efficient, and appropriate strategies when working with counting and counting on to 120 and when working with Addition and Subtraction. Particularly this unit focus’ on students using anchors/landmarks of 5 and 10. Phase II in this unit works on building from the reasoning strategies students have begun to develop in the previous units and applying these to larger numbers (up to 120). This is a jump for students as Unit 3 focused on 2-digit numbers from 0-20. Students use the number line to support counting by 1s, 5s, and 10s. Just as in Unit 3, Numbers Base Ten and Operations and Algebraic Thinking standards are worked on simultaneously throughout this unit building place value understanding and deepening students’ understanding of number relationships (Part/Part/Whole). You may have a wide range of student levels of sophistication represented in your class which becomes evident through your child watching. According to Battista (2012), “the more students describe their thinking, the better they will become at explaining that thinking, especially if you guide them toward providing increasingly accurate and detailed descriptions of their reasoning” (p. xiii). Utilize your questioning techniques to push for student descriptions that will lead you to understanding their strategies and reasoning. If they say “I counted,” return with “How did you count? Can you show me?” The variety of reasoning strategies you will see could follow this trajectory (see below), but note that working through this big idea is not a linear path. “Students may travel slightly different trajectories in ascending through this cognitive terrain and they may end their trajectories at different places depending on the curricula and teaching they experience” (Battista, 2012, p. x).

<table>
<thead>
<tr>
<th>Level</th>
<th>Sublevel</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td>Student does not understand addition and subtraction situations.</td>
</tr>
<tr>
<td>1</td>
<td>1.1</td>
<td>Student counts all.</td>
</tr>
<tr>
<td></td>
<td>1.2</td>
<td>Student counts on or down.</td>
</tr>
<tr>
<td></td>
<td>1.3</td>
<td>Student recalls or derives a fact.</td>
</tr>
<tr>
<td></td>
<td>1.4</td>
<td>Student operates on tens and ones separately as ones.</td>
</tr>
<tr>
<td>2</td>
<td>2.1</td>
<td>Student counts by tens and ones separately.</td>
</tr>
<tr>
<td></td>
<td>2.2</td>
<td>Student counts by tens in mid-decades.</td>
</tr>
</tbody>
</table>

(Battista, 2012, p. 10)

The last module introduces the measurement standards by extending students’ work on the number line by turning the number line vertically into a measuring strip. Students will continue exploring comparison problem types using measurements as the number contexts and will be expected to utilize the reasoning strategies counting up and down, by 1s, 5s, and 10s. Attend to the Unit 4 Mathematical Background to address the open number line concept and how it can solidify and support skip counting (pp. ii-iv).
Students benefit from additional learning opportunities in the Measurement and Data cluster, specifically in “Ordering three objects by length; compare the lengths of two objects indirectly by using a third object” (NVACS, 2010, 1.MD.1). Extended lessons support teachers in providing these opportunities for students.

Powerful connections between Number Corner and the lessons will start to become evident. Up to this point, the two components may have felt isolated from each other; however, teachers have the ability to use one as a launching point to create a common experience and common schema. This will create a strong foundation for future lessons. In Unit 4 lessons, Tad and Polli, the frog characters from the September Number Corner return. Additionally, the work in Number Corner on the Number Line and Days in School have created opportunity for students to engage successfully with the open number line, moving forward and backward on the number line and using it as a model for computation.

<table>
<thead>
<tr>
<th>Essential Academic Vocabulary:</th>
<th>Review Vocabulary:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use these words consistently during instruction</td>
<td>(Vocabulary taught prior grades or units)</td>
</tr>
<tr>
<td><strong>New Academic Vocabulary:</strong></td>
<td><strong>Add</strong></td>
</tr>
<tr>
<td>Use these words consistently during instruction to begin to develop understanding.</td>
<td><strong>Less than</strong></td>
</tr>
<tr>
<td><em>a Word Resource Card is available</em></td>
<td><strong>Addition</strong></td>
</tr>
<tr>
<td>Data*</td>
<td><strong>Long/Longer/Longest</strong></td>
</tr>
<tr>
<td>Inch*</td>
<td><strong>Multiple</strong></td>
</tr>
<tr>
<td>Information</td>
<td><strong>Decade</strong></td>
</tr>
<tr>
<td>Measure</td>
<td><strong>Number Line</strong></td>
</tr>
<tr>
<td>More than</td>
<td><strong>Difference</strong></td>
</tr>
<tr>
<td>Open number line*</td>
<td><strong>Scale</strong></td>
</tr>
<tr>
<td><strong>Review Vocabulary:</strong></td>
<td><strong>Double</strong></td>
</tr>
<tr>
<td><strong>Add</strong></td>
<td><strong>Short/Shorter/Shortest</strong></td>
</tr>
<tr>
<td>Addition</td>
<td><strong>Equal</strong></td>
</tr>
<tr>
<td>Compare*</td>
<td><strong>Subtract</strong></td>
</tr>
<tr>
<td>Decade</td>
<td><strong>Equation</strong></td>
</tr>
<tr>
<td>Difference*</td>
<td><strong>Subtraction</strong></td>
</tr>
<tr>
<td>Double</td>
<td><strong>Graph</strong></td>
</tr>
<tr>
<td>Equal*</td>
<td><strong>Sum or Total</strong></td>
</tr>
<tr>
<td>Equation*</td>
<td><strong>Height</strong></td>
</tr>
<tr>
<td>Graph</td>
<td><strong>Less than</strong></td>
</tr>
<tr>
<td>Half*</td>
<td><strong>Taller than</strong></td>
</tr>
<tr>
<td>More than</td>
<td><strong>Tens</strong></td>
</tr>
<tr>
<td>Open number line</td>
<td></td>
</tr>
</tbody>
</table>

**Additional terminology that students may need support with:** strategies, minus, plus, predict, prediction, skip-jump problem

Standards listed in **bold** indicate a focus of the lesson.

<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><strong>Module 1 - Session 1: The Life-Sized Number Line</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1.NBT.1</strong></td>
<td><strong>Access Prior Learning:</strong></td>
<td><strong>Instructional NOTE:</strong></td>
</tr>
<tr>
<td></td>
<td>• Kindergarten students utilized the number line, and open number line up to the quantity of 20</td>
<td>• The number line will maintain a strong presence throughout the year. Many teachers have found it successful to create a more permanent option for a number line by affixing a retractable clothesline to a location at child’s eye level. See this blog post from the Bridges Educator Site to provide these tips and ideas (copy and paste link if needed).</td>
</tr>
<tr>
<td></td>
<td>• K.CC- know number names and the count sequence, compare numbers</td>
<td><strong><a href="https://bridges.mathlearningcenter.org/implement/blog/learning-life-sized-number-line-and-number-line-app">https://bridges.mathlearningcenter.org/implement/blog/learning-life-sized-number-line-and-number-line-app</a></strong></td>
</tr>
<tr>
<td></td>
<td><strong>Developing the Big Idea:</strong></td>
<td>• The digital tool for the number line may be useful throughout this unit. Found <a href="#">here</a>.</td>
</tr>
<tr>
<td></td>
<td>Students will deepen their understanding of the relationship between numbers by ordering and placing number cards appropriately, and using strategies such as “half” or “double” number and space to determine a card’s placement on the number line. This will lead to strategies of counting on and back on the number line. This strengthens their repertoire of strategies to build math fluency in Phase 2 of fluency development.</td>
<td>• Read the About This Session in the margin (p. 4)</td>
</tr>
<tr>
<td></td>
<td><strong>Instructional NOTE:</strong></td>
<td>• Resist the urge to call students up in numerical order and have them place their card next to the last numeral. This removes the teaching through problem solving approach.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Student misconceptions to be aware of include students’ thinking the 0 has to be all the way to the left on the line, that the amount of space between numbers must be of exactly equal size iterations of the cards to equal the number of “missing cards,” and that the cards cannot be moved to change the scale.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Have a discussion about the term scale to help children understand that the amount of space needed between numbers can change based on the two endpoints (or the measure).</td>
</tr>
<tr>
<td></td>
<td><strong>Enrichment:</strong> See Step 9 (p. 6)</td>
<td><strong>Instructional NOTE:</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Child Watching:</strong></td>
<td>• Observe for students struggling with counting, identifying numerals, or determining the order and cardinality of numbers. Work with them at another time with a range of numbers appropriate to their instructional level.</td>
</tr>
<tr>
<td></td>
<td>• Observe for students struggling with counting, identifying numerals, or determining the order and cardinality of numbers. Work with them at another time with a range of numbers appropriate to their instructional level.</td>
<td></td>
</tr>
</tbody>
</table>
### Module 1- Session 2: What's in the Box?

**1.OA.5, 1.OA.8**

**Access Prior Learning:**
- Kindergarten students utilized the number line, and open number line up to the quantity of 20
- K.CC- know number names and the count sequence, compare numbers
- Session 1, introduction to the number line.

**Developing the Big Idea:**
Students will deepen their understanding of the relationship between numbers by using strategies to count forward and backward on a number line to model the action occurring in a story problem. This strengthens students' repertoire of strategies to build math fluency in Phase 2 of fluency development.

**Instructional NOTE:**
- Read the About This Session in the margin (p. 8)
- Students may struggle with the concept that finding the number “in the middle” may not always be half of the final number. For example, if a number line shows 0 and 20 with a missing number halfway between, the answer is 10, which does represent half of 20. However, if a number line shows 10 and 20 with a box in the middle, they are confronted with the idea that half is not based on the 20 alone, but based on the midway point between the two identified numbers. This can lead to a great conversation if the misconceptions become evident.

**Enrichment:** See Step 7 (p. 11)

**Child Watching:**
- Observe for students struggling with counting, identifying numerals, or determining the order and cardinality of numbers. Work with them at another time on a range of numbers appropriate to their instructional level.
- Observe for students providing justifications for their reasoning.

### Module 1- Session 3: Hopping Along the Number Line to Ten

**1.OA.1, 1.OA.5, 1.OA.6**

**Access Prior Learning:**
- Kindergarten students utilized the number line, and open number line up to the quantity of 20
- K.CC- know number names and the count sequence, compare numbers
- Previous sessions

**Developing the Big Idea:**
Students will deepen their understanding of the relationship between numbers by using strategies to count forward and backward on a number line to model the action occurring in a story problem. This strengthens students' repertoire of strategies to build math fluency in Phase 2 of fluency development.

**Instructional NOTE:**
- A misconception students have when using the number line to solve problems is counting the lines (ticks) or numbers rather than counting the spaces or area between ticks. One strategy to address this is to teach them the difference between a “hop/jump” and a “leap”. Frogs don't jump straight up and down, landing in the same spot, they always move a distance left or right. Students seem to be successful in understanding this distinction. “We don't count jumps (up and down on the same number) we only count the leaps.”

**Enrichment:** Some students may be challenged by increasing the number quantities in the stories and adjusting the number line accordingly.

**Child Watching:**
- Watch for students who count the number the frog starts on, which will result in them always being off by one number.

### Module 1- Session 4: Introducing Work Place 4A The Frog Jump Game

**1.OA.1, 1.OA.5, 1.OA.6**

**Access Prior Learning:**
- Kindergarten students utilized the number line, and open number line up to the quantity of 20
- K.CC- know number names and the count sequence, compare numbers
- Previous Sessions

**Developing the Big Idea:**
Students will deepen their understanding of the relationship between numbers by using strategies to count forward and backward on a number line to model the action occurring in a story problem. This strengthens students' repertoire of strategies to build math fluency in Phase 2 of fluency development.

**Instructional NOTE:**
- See the online digital tools with the add and subtract spinner and cards [https://bridges.mathlearningcenter.org/digital-materials/work-place-4a-frog-jump-game](https://bridges.mathlearningcenter.org/digital-materials/work-place-4a-frog-jump-game)
- See the Work Place Sentence Frames for Unit 4 here.
- A powerful part of this lesson is in the conversation around what makes sense when arranging the cards to model a subtraction equation.
- Consider moving into the representational phase by drawing a number line on the board and showing how to model student thinking on it. Do this after students have acted it out concretely on the life size number line.

**Enrichment:** See the Game Variations on Work Place Instructions (p. T4)

**Child Watching:**
- Observe which students are counting by 1s and which students are counting on. You will want this information for tomorrow’s lesson.
- Observe for students being confused about directions on the number line for addition and subtraction.
- Observe for students struggling to identify a story with an addition or subtraction operation. Use Work Place Guide for suggestions to support (p. T2).

### Module 1- Session 5: Add & Subtract on the Number Line

**1.OA.5, 1.OA.6**

**Access Prior Learning:**
- Kindergarten students utilized the number line, and open number line up to the quantity of 20
- K.CC- know number names and the count sequence, compare numbers

**Instructional NOTE:**
- Read the Math Practices in Action in the margin (p. 22)

-continues on next page-
### Module 2- Session 1: The Number Line to 120

**Access Prior Learning:**
- 1.NBT.1 Kindergarten students utilized the number line, and open number line up to the quantity of 20.
- 1.NBT.5 K.CC- know number names and the count sequence, compare numbers.
- 1.MP.2 Previous Sessions have focused on numbers to 10, and then to 20.
- 1.MP.8

**Developing the Big Idea:**
Students will deepen their understanding of the relationship between numbers by using strategies to count forward and backward on a number line to model the action occurring in the given scenario. The numbers have extended into 3-digit numbers. This strengthens students' repertoire of strategies to build math fluency in Phase 2 of fluency development.

**Instructional NOTE:**
- Read the About This Session in the margin (p. 4).
- Make strong connections to the idea that 5 and 50, 10 and 100, could land very similarly on the number line and highlight that relationship.
- As stated in the K-5 Progression on Number and Operations in Base Ten, "The number words continue to require attention at first grade because of their irregularities. The decade words "twenty, thirty, forty" must be understood as indicating 2 tens, 3 tens etc. Many decade number words sound much like teen number words. For example, "fourteen" and "forty" sound very similar" (pp. 6-7).
- When providing opportunities for students to find the “half way point” students need many opportunities to experience using the anchor of 5. For example, halfway between 20 and 30 which would be 25.

**Enrichment:** See Step 6 (p. 6)

**Child Watching:**
- Observe for students struggling with these scenarios, revert back to instructionally appropriate number quantities if need be, and then make the explicit connection and relationship between 5 and 50 etc.

### Module 2- Session 2: Find the Value

**Access Prior Learning:**
- 1.NBT.1 Kindergarten students utilized the number line, and open number line up to the quantity of 20.
- 1.NBT.5 K.CC- know number names and the count sequence, compare numbers.
- 1.MP.2 Previous Sessions have focused on numbers to 10, and then to 120.
- 1.MP.8

**Developing the Big Idea:**
Students will deepen their understanding of the relationship between numbers by using strategies to count forward and backward on a number line to model the action occurring in the given scenario. The numbers have extended into 3-digit numbers. This strengthens students' repertoire of strategies to build math fluency in Phase 2 of fluency development.

**Instructional NOTE:**
- Observe and document which strategies students are using, for example count all, count on.

**Enrichment:**
- See Step 6 (p. 11)

**Child Watching:**
- Observe for students struggling with these scenarios, scaffold appropriately encouraging use of tools to support these understandings.

### Module 2- Session 3: Hopping Along the Number Line to One Hundred

**Access Prior Learning:**
- 1.NBT.1 Kindergarten students utilized the number line, and open number line up to the quantity of 20.
- 1.NBT.4 K.CC- know number names and the count sequence, compare numbers.
- 1.NBT.6 Previous Sessions have focused on numbers to 10, and then to 120.
- 1.MP.7 1.MP.8

**Developing the Big Idea:**
Students will deepen their understanding of

**Instructional NOTE:**
- Read the Math Practices in Action in the margin (p. 16)
- Make the explicit connection and relationship between 5 and 50 etc.

**Enrichment:**
- Extend number quantities past 120
- Have students record the equations

**Child Watching:**
- Observe for students struggling with counting by tens, or struggling determining which direction to move on the number line. Have students act out the problem if need be.
- Be watchful of the misconception of counting the first number (jump verses leap)

---

**MP.5**
- Previous Sessions

**Developing the Big Idea:**
Students will deepen their understanding of the relationship between numbers by using strategies to count forward and backward on a number line to model the action occurring in a story problem. This strengthens students’ repertoire of strategies to build math fluency in Phase 2 of fluency development.

- Spend time looking at the difference between the strategies of counting-by-1s and counting-on. Highlight a student whom you observed yesterday using the counting all strategy. Name the strategy. Then strategically choose a student using the counting-on strategy, and name the strategy. Discuss with students how counting on is more efficient than counting all.
- Pay close attention to the recommendation in Step 9 (pp. 23-24).

**Enrichment:** Ask students to try more than one strategy on each problem.

**Child Watching:**
- Observe and document which strategies students are using, for example count all, count on.
the relationship between numbers by using strategies to count forward and backward on a number line to model the action occurring in the given story problem. The numbers have extended into 3-digit numbers. This strengthens students' repertoire of strategies to build math fluency in Phase 2 of fluency development.

### Module 2 Session 4: Introducing Work Place 4B Super Frogs

<table>
<thead>
<tr>
<th>1.NBT.1</th>
<th>1.NBT.2c</th>
<th>1.NBT.4</th>
<th>1.NBT.6</th>
<th>1.MP.2</th>
<th>1.MP.7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access Prior Learning:</td>
<td>Kindergarten students utilized the number line, and open number line up to the quantity of 20</td>
<td>K.CC- know number names and the count sequence, compare numbers</td>
<td>Previous Sessions have focused on numbers to 10, and then to 120</td>
<td></td>
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</tr>
<tr>
<td>Developing the Big Idea:</td>
<td>Students will deepen their understanding of the relationship between numbers by using strategies to count forward and backward on a number line to model the action occurring in the given story problem. The numbers have extended into 3-digit numbers. This strengthens students' repertoire of strategies to build math fluency in Phase 2 of fluency development.</td>
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</tbody>
</table>

### Instructional NOTE:
- "Super Frogs" is recommended as a Work Place grade to enter in Infinite Campus (see Q2 Grading suggestion document).

### Enrichment:
- Work Place Game Variations (p. T3)

#### Child Watching:
- Observe for students struggling with counting by 10s, or struggling determining which direction to move on the number line. Have students act out the problem if need be.
- Be watchful of the misconception of counting the first number (jump versus leap)

### Module 2- Session 5: Add & Subtract on the Number Line to One Hundred

<table>
<thead>
<tr>
<th>1.NBT.2c</th>
<th>1.NBT.4</th>
<th>1.NBT.6</th>
<th>MP.2</th>
<th>MP.7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access Prior Learning:</td>
<td>Kindergarten students utilized the number line, and open number line up to the quantity of 20</td>
<td>K.CC- know number names and the count sequence, compare numbers</td>
<td>Previous Sessions have focused on numbers to 10, and then to 120</td>
<td></td>
</tr>
<tr>
<td>Developing the Big Idea:</td>
<td>Students will deepen their understanding of the relationship between numbers by using strategies to count forward and backward on a number line to model the action occurring in the given story problem. The numbers have extended into 3-digit numbers. This strengthens students' repertoire of strategies to build math fluency in Phase 2 of fluency development.</td>
<td></td>
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</tr>
</tbody>
</table>

### Instructional NOTE:
- See the online Digital Display materials. Note that all the student work pages are available on this site. [https://bridges.mathlearningcenter.org/digital-materials/numbers-line-checkpoint](https://bridges.mathlearningcenter.org/digital-materials/numbers-line-checkpoint)
- The Assessment Binder under the Bridges Unit Assessment tab provides the scoring guide for this checkpoint (p. 39). It can also be downloaded from the site and scores entered digitally to create a color coded spreadsheet. [https://bridges.mathlearningcenter.org/implementation](https://bridges.mathlearningcenter.org/implementation) See the right hand side where it says, "assessment tools."

#### Enrichment:

- Use the scoring guide to assess students and inform your instruction. Watch for students struggling to count forward and particularly backward by 1s.

### Module 3- Session 1: Lily Pads

<table>
<thead>
<tr>
<th>1.NBT.1</th>
<th>1.NBT.2c</th>
<th>1.NBT.5</th>
<th>MP.2</th>
<th>MP.7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access Prior Learning:</td>
<td>Kindergarten students utilized the number line, and open number line up to the quantity of 20</td>
<td>K.CC- know number names and the count sequence, compare numbers</td>
<td>Previous Sessions have focused on counting forward and backward by 1</td>
<td></td>
</tr>
<tr>
<td>Developing the Big Idea:</td>
<td>Students will deepen their understanding of the relationship between numbers by using strategies to count forward and backward on a number line by 10s to model the action occurring in the given story problem. This strengthens students' repertoire of strategies to build math fluency in Phase 2 of fluency development.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Instructional NOTE:
- A common misconception students struggle with when counting on the number line is to count the numbers (lily pads) instead of counting the spaces in between (the leaps). This will result in students being off by one count of 10s.
- Several of the recommended questions suggest counting how many leaps. Ensure that when students are communicating about the number of leaps in this scenario, each leap represents 10, not 1. Three leaps should be paired with “3 leaps equal 30 inches” continuously.
- Note that although the term "inches" is being used here to represent the amount of space between each lily pad, inches as a unit of measure is not a first grade standard, it is a 2nd grade standard. Focus on the intended mathematical purpose of counting forwards and backward by 10s, and see the inches as creating a setting for the story line.
- See the digital tools for Frog Path 4C Work Place on the Educator Site [https://bridges.mathlearningcenter.org/digital-materials/work-place-4c-frog-path](https://bridges.mathlearningcenter.org/digital-materials/work-place-4c-frog-path) "Frog Path" is recommended as a Work Place grade to enter in Infinite Campus (see Q2 Grading suggestion document).

-continues on next page-
### Module 3- Session 2: Chase the Fly

**1.NBT.1**  
1.NBT.2c  
1.NBT.3  
1.NBT.5  
1.OA.5  
MP.2  
MP.7

**Access Prior Learning:**  
- Kindergarten students utilized the number line, and open number line up to the quantity of 20  
- K.CC- know number names and the count sequence, compare numbers  
- The previous sessions focused on counting forward and backward by 10

**Developing the Big Idea:**  
Students will deepen their understanding of the relationship between numbers by using strategies to count forward and backward on a number line by 5s & 10s to model the action occurring in the given story problem. This strengthens students' repertoire of strategies to build math fluency in Phase 2 of fluency development.

**Instructional NOTE:**  
- You can use the digital number line rather than drawing your own. Use the tools on the bottom of the number line to change the count to 5s. You can even adjust the spacing of the number ticks as well.  
- Step 3 asks you to have students come up and place their number card on the line. The power of this comes from random ordering. Try to refrain from the “who has 0? Who has 5? Who has 10?” method of placement. Instead use the phrasing, “Johnny has 10. Where on the line do you think it should be placed?”  
- Read the Math Practices in Action in the margin (p. 11).  
- Be sure to utilize accountable talk and classroom discourse throughout the discussions.

**Enrichment:**  
See Step 13 (p. 13)

**Child Watching:**  
- Observe for students struggling with determining 10 less or 10 more.  
- Students may struggle connecting the chart to the number line. Have a child point to the chart simultaneously with another pointing to the number line.

### Module 3- Session 3: Frog Races

**1.OA.5**  
1.NBT.4  
1.NBT.5  
1.OA.5  
1.NBT.5  
MP.7  
MP.8

**Access Prior Learning:**  
- Kindergarten students utilized the number line, and open number line up to the quantity of 20  
- K.CC- know number names and the count sequence, compare numbers  
- The previous sessions focused on counting forward and backward by 5 & 10. The 10 has been on a decade number consistently

**Developing the Big Idea:**  
Students will deepen their understanding of the relationship between numbers by using strategies to count forward and backward on a number line by 1s, 5s & 10s to model the action occurring in the given story problem. This strengthens students' repertoire of strategies to build math fluency in Phase 2 of fluency development.

**Instructional NOTE:**  
- Read the Math Practices in Action in the margin (p. 16)  
- This lesson begins addressing counting by 10s off the decade (34, 44, 54)  
- See this game from the Bridges Educator site to support counting by groups.  
- You can use the digital number line rather than drawing your own. Use the tools on the bottom of the number line to change the count to 10s.  
- Provide students with many opportunities to work with the number line and the open number line to develop understanding of counting off the decades. The number line provides a stronger mathematical trajectory as they learn, as opposed to the hundreds grid. The linear model provides students the ability to use the model flexibly and supports thinking strategies because of its inherent linearity. Whereas a hundreds grid can actually limit them, and can create a proceduralized approach by “just moving down one” which can prevent students from understanding the relationship between the numbers.

**Enrichment:**  
Extend the counting sequence beyond 120.

**Child Watching:**  
- Observe for students struggling with determining 10 less or 10 more.

### Module 3- Session 4: Hit the Pad

**1.NBT.4**  
1.NBT.5  
1.NBT.6  
MP.2  
MP.7

**Access Prior Learning:**  
- Kindergarten students utilized the number line, and open number line up to the quantity of 20  
- K.CC- know number names and the count sequence, compare numbers  
- The previous sessions focused on counting forward and backward by 1, 5 & 10 (the 10 being off a decade number was introduced during the last session)

**Developing the Big Idea:**  
Students will deepen their understanding of the relationship between numbers by using strategies to count forward and backward on a number line by 1s, 5s & 10s to model the action occurring in the given story problem. This strengthens students' repertoire of strategies to build math fluency in Phase 2 of fluency development.

**Instructional NOTE:**  
- See the online Digital Display materials [https://bridges.mathlearningcenter.org/digital-materials/session-4-hit-pad](https://bridges.mathlearningcenter.org/digital-materials/session-4-hit-pad)  
- Read the About This Session in the margin (p. 22).

**Enrichment:**  
This game is very challenging and students may need multiple times playing it with the teacher.

**Child Watching:**  
- Observe for students struggling with determining 10 less or 10 more on and off the decade.  
- Observe for students struggling to determine whether they move forward or backward on the number line.  
- Observe for students struggling with counting by 10s.  
- Observe for students counting the numbers rather than the spaces resulting in an inaccurate answer.
### Module 3- Session 5: Unit 4 Assessment

**Access Prior Learning:**
- Kindergarten students utilized the number line, and open number line up to the quantity of 20
- K.CC- know number names and the count sequence, compare numbers
- The previous sessions focused on counting forward and backward by 1, 5 & 10 (the 10 being off a decade number was introduced during the previous sessions)

**Developing the Big Idea:**
Students will deepen their understanding of the relationship between numbers by using strategies to count forward and backward on a number line by 1s, 5s & 10s to model the action occurring in the given story problem. This strengthens students' repertoire of strategies to build math fluency in Phase 2 of fluency development.

**Instructional NOTE:**
- The Assessment Binder under the Bridges Unit Assessment tab provides the scoring guide for the for Unit 4 Assessment (p. 43). It can also be downloaded from the site and scores entered digitally to create a color coded spreadsheet.
- See the right hand side where it says, "assessment tools."

**Enrichment:**
**Child Watching:**
At this point teachers should be concerned about those students struggling with one or more of the following. (See Assessment Binder, Bridges Unit Assessment tab, p. 35 for more information.)

- Counting to 100 by 10s (K standard)
- Counting backward from various numbers between 1-100
- Counting to 120 starting from any number less than 120
- Counting on and counting back to solve addition and subtraction combinations to 20
- Understanding that 10 can be thought of as a bundle of 10 ones
- Understanding that the numbers from 11 and 19 are composed of a ten and 1-9 ones.

### Module 4- Session 1: Going to Antarctica

**Access Prior Learning:**
- K.MD.1- Describe and compare measurable attributes of objects such as length or weight
- K.MD.2- Directly compare two objects with a measurable attribute in common to see which object has “more of”/“less of” the attribute and describe the difference
- Kinder students focused on units of measure, such as shoes, to determine lengths

**Developing the Big Idea:**
Students will create their own measuring tool using strips of cut-out units with numbers on them. This work supports the big idea of relationships between numbers as students determine the order of numbers during the gluing together of their numbered measuring units.

**Instructional NOTE:**
- Extend this lesson to two (2) days to provide learning opportunities to support 1.MD.1.
- Note: Inches and feet are part of the story context. The focus of this lesson is using numbers lines vertically and using the line as a measuring tool.
- Although constructing students own measuring strips seems time consuming, it is a valuable use of time. The act of constructing this tool will aide in the construction of their own knowledge about measuring tools and how they work, specifically, iterated unit lengths connected together. It will also present opportunities to flesh out student misconceptions around measurement. Some common misconceptions to be aware of in this lesson include: leaving gaps between or overlapping units, and using units that are not of equal size. Students will learn the importance of attending to precision (Van de Wall, 2014). If a student’s constructed measuring strip has many overlaps in the gluing, allow this to come to light by having two students measure the same one student using their two different tools. When they arrive at different answers question why that might be.

**Day 1:** Complete lesson using below notes:

- The session sequence: Follow Step 1 and introduce Step 2. Insert the Estimating String Activity (see below). Skip Step 5 and other steps related to constructing the Snowsuit Graph. These will be completed on Day 2.
- Estimating String Activity: The following modification provides students with additional exploration of directly and indirectly comparing lengths (NVACS, 2010, 1.MD.1). Provide students with a 6-foot length of string. Allow students to estimate (not directly measure) their body length, then cut the string to show their estimation of their body length. Students work with a partner to compare their string lengths to their actual body lengths. Encourage vocabulary (less than, longer than) during student discussion of their string estimates and their body length. Continue with Steps 3 & 4. Students create their own measuring strips while the teacher measures each student, as stated in Step 7. (Skip Step 5). Step 8, students cut their completed measuring strips to match their height. The following discussion leads students to make an indirect comparison. Discussion: “Recall how your string compared to your actual body length. We just cut our measuring strips to match our body lengths. Predict how your string will compare to your measuring strip.” (My string was more than my body so the string will be more than my measuring strip.) Allow students to concretely test their indirect comparison.

-continues on next page-
### Module 4 - Session 2: Rockhopper Penguins

#### Access Prior Learning:
- **1.NBT.1**: Describe and compare measurable attributes of objects such as length or weight.
- **1.NBT.2c**: Directly compare two objects with a measurable attribute in common to see which object has “more of”/“less of” the attribute and describe the difference.
- **1.NBT.3**: Kinder students focused on units of measure such as shoes to determine lengths.
- **1.NBT.6**: The previous unit students constructed their own measuring strip.

#### Instructional NOTE:
- Use the students’ strings from the previous session to create the “Rockhopper” string length.
- Utilize the instructional note for the previous session.
- Find the Rockhopper Penguin poem [here](#).
- The act of creating a length of string to compare measurement length is an action that supports the idea of transitivity, which is developed throughout the year. (See K-6 Progression on Measurement and Data (Measurement Part, p. 3).
- A note about using strings, strings allow students to understand length as a straight line between two points. This addresses misconceptions students have such as, measuring around the shape of a body, which results in an inaccurate length measurement.

#### Enrichment:
- Students can explore measuring other objects.

#### Child Watching:
- Observe for these misconceptions: Students not keeping the length of string straight, or students not lining the beginning of their string up with the beginning of their measuring tool. These actions will both lead to inaccurate measurements and measurement misconceptions. If you see these, highlight the misconception by having two students compare their length of strings and find they are not the same, revisit their measuring strategies to flesh out the misconception.

### Module 4 - Session 3: King Penguins

#### Access Prior Learning:
- **1.OA.8**: Directly compare two objects with a measurable attribute in common to see which object has “more of”/“less of” the attribute and describe the difference.
- **1.NBT.2c**: Kinder students focused on units of measure such as shoes to determine lengths.
- **1.NBT.6**: The previous unit students measured a length of string for the Rockhopper Penguin.

#### Instructional NOTE:
- Find the “King Penguins” poem [here](#).
- See Session 1 and Session 2 Instructional Notes.

#### Enrichment:
- See Step 5 in the lesson (p. 16).

#### Child Watching:
- Observe for these misconceptions: Students not keeping the length of string straight, or students not lining the beginning of their string up with the beginning of their measuring tool, which will both lead to inaccurate measurements. If you see these, highlight the misconception by having two students compare their length of strings and find they are not the same, revisit their measuring strategies to flesh out the misconception.
Students will use the measurements collected to deepen their understanding of the relationship between numbers through comparison of the measurements, identifying greater than and less than, and determining the difference between numbers. This work builds student understanding of the part/part/whole relationships. It also supports the growth in fluency Phase 2 reasoning strategies as students count up and down from numbers to determine differences.

### Module 4 - Session 4: Comparing Rockhopper & King Penguins

**Access Prior Learning:**
- 1.OA.1
- 1.OA.8
- 1.NBT.1
- 1.NBT.2c
- 1.NBT.3
- 1.NBT.4
- 1.MD.2
- MP.1
- MP.5

In exploring with measurements, students will engage in the process of using a vertical number line to measure lengths of string. Students will use the measurements collected to deepen their understanding of the relationship between numbers through comparison of the measurements, identifying greater than and less than, and determining the difference between numbers. This work builds student understanding of the part/part/whole relationships. It also supports the growth in fluency Phase 2 reasoning strategies as students count up and down from numbers to determine differences.

**Instructional NOTE:**
- Remember that comparison/difference unknown problems are some of the most difficult problem types 1st graders will encounter. See page 88 in the NVACS for this chart. See Step 4 for suggestions if students struggle with understanding what the problem is asking (p. 21).
- Allow students access to multiple tools, such as unifix cubes and number lines to work through this. Some students will want to construct 18 and 36, then match up the towers, then snap off the difference and count them. Note if students using cubes try to match them up with the measuring strip. You will find the misconception that the cubes are not each an inch in length, resulting in 18 cubes being less than 18 inches.
- Some students may be able to just count up by 1s from 18 to 36, some may count by 1s to 20 then hop from 20 to 30, some may move to more sophisticated strategies such as counting by 10s from 18 to 28 then by 1s from 28 to 36, some may count off the decade 18, 28, 38 then hop back 2 to compensate.
- To maintain a positive learning environment, it is important to not associate counting by 1s as a negative strategy, because it may be an appropriate strategy when numbers are close together (ex: 18 to 20). Students should not feel shame for using this strategy, but conversation about when it is appropriate should occur.
- Consider permanently posting the penguins' strings next to the labeled measuring strip. This will support students who need a concrete model, allowing them to connect the concrete string to the abstract label on the measuring strip, and support further direct comparisons.

**Enrichment:** See Step 8 (p. 22)

**Child Watching:**
- Observe for student strategies, choose the lowest level strategy (counting up by ones perhaps) to share first, then select a student who counted by 10s then 1s to share next, perhaps ending with a student who counted by 10s off the decade. The point of this is to order the strategies from lowest sophistication to highest to highlight the progression, and challenge students to try a different one. Any students still focusing on count by 1s should be encouraged to move to a more efficient strategy.

### Module 4 - Session 5: Me & the Penguins

**Access Prior Learning:**
- 1.OA.1
- 1.OA.8
- 1.NBT.1
- 1.NBT.3
- 1.NBT.4
- 1.MD.1
- 1.MD.2
- MP.1
- MP.5

In exploring with measurements, students will engage in the process of using a vertical number line to measure lengths of string.

**Instructional NOTE:**
- Read the About This Session in the margin (p. 26).
- The idea of seriation comes to play in this lesson, ordering a set on objects by length (MD.1) “Such sequencing requires multiple comparisons. Initially, students find it difficult to seriate a large set of objects that differ only slightly in length” (K-6 Progression on Measurement and Data (Measurement Part, p. 6).
- The idea of transivity (if a is longer than b, and b is longer than c, then a must be longer than c too) is a big idea for students to wrap their heads around and is great fodder for classroom discussion.

**Enrichment:** See Step 2 (p. 26), See Step 10 (p. 28).

**Child Watching:**
- Continue to observe for student strategies in comparing lengths as noted in the previous session.
Students will use the measurements collected to deepen their understanding of the relationship between numbers through comparison of the measurements, identifying greater than and less than, and determining the difference between numbers. This work builds student understanding of the part/part/whole relationships. It also supports the growth in fluency Phase 2 reasoning strategies as students count up and down from numbers to determine differences.

Standards listed in **bold** indicate a focus of the lesson.

**References**


First Grade Unit 5: Geometry

Big Conceptual Idea: K-6 Progression on Measurement and Data (Measurement Part) (pp. 8-11), K-5 Progression on Geometry (pp. 8-9)

Throughout the unit the Math Practices are introduced and used. Find student friendly posters here.

Links might require you being logged into your Bridges Educator Site. If the link does not work for you, copy and paste the http address into a browser.

Mathematical Background:
Read Bridges Unit Overview pages (pp. i-xi).

Unit Essential Question:
What are the attributes of two-dimensional and three-dimensional shapes? What are the relationships between shapes and how can composing and decomposing shapes support the part/part/whole concept?

Instructional note:
This unit's big idea is deepening the children’s understanding of two-dimensional and three-dimensional shapes and shapes' relationships to other shapes. The Van Hiele levels of geometrical reasoning are outlined in the unit overview pages 2 and 3, and as encouraged above, should be read prior to instruction. The goal of Unit 5 is to explore two-dimensional and three-dimensional shapes by identifying, describing, constructing, drawing, comparing, composing and sorting. Students progress through the levels of geometric understanding as they experience and explore with shapes. Students in first grade are likely at a level 0 or Visualization. Students at level 0 might say, “a rectangle is a door or a table.” Level 0 thinkers relate a geometric figure to an object it resembles.

Depending on how much experience students have had exploring with shapes, some might be at a level 1 or Analysis. These students are beginning to notice shape properties. For example, students might say “rectangles have 4 sides and 4 right angles.” It could take most of elementary school for students to progress through recognizing shapes, discussing shapes in terms of geometric properties and make comparisons between shapes. Most importantly, students need lots of experiences that are focused on the characteristics of shapes to do so. “All teachers should be aware that the experiences they provide are the single most important factor in moving children up this developmental ladder” (Van de Walle, Karp, Lovin, & Bay-Williams, 2014, p.304). Teachers utilize tasks or activities involving shape to clarify the terms or vocabulary students are already using and introduce new vocabulary or language of shapes. Encourage students to use terminology, including edges, faces, vertices, parallel, and so forth as they talk and write about their experiences in the math workshop. These terms are not expected to be mastered by students, but the exposure to precise academic terminology will support students in developing academic vocabulary and develop geometric concepts, including shape attributes and properties.

Throughout mathematical instruction the idea of relationships should not be new. A focus on developing the big idea of part-whole relationships occurred throughout the previous units. Geometry continues to support this idea of “building understanding of part-whole relationships as well as the properties of the original and composite shapes. Note that the process of combining shapes to create a composite shape is much like combining 10 ones to make 1 ten” (K-6 Progression on Geometry, 2013, p. 8).

Clements and Sarama state “spatial sense can be defined as an intuition about shapes and the relationships between shapes and is considered a core area of mathematical study in the early grades” (as cited in Van de Walle et al., 2013, p. 299). The standards have identified geometrical reasoning as one of the four critical content areas in mathematics for first graders. “Geometry instruction in grades pre-K-2 should help children learn more about the world they live in while also playing a significant role in supporting the development of number concepts” (Van de Walle et al., 2014, p. 299). Geometry instruction also develops “…the background for measurement and for initial understandings of properties such as congruence and symmetry.” (Nevada Academic Content Standards (NVACS), 2010, p. 13).

Other ideas that students will be grappling with as they encounter these shape experiences include “Shapes can be moved in a plane in space without changing the shape’s properties. These movements can be described in terms of translations (slides), reflections (flips) and rotations (turns)” (Van de Walle et al., 2014, p. 299).

The following are student misconceptions to be aware of and address throughout the unit:

- A trapezoid is always red (The trapezoids in pattern blocks are red)
- Triangles are always equilateral (The triangles in pattern blocks and on many pre-made posters are often equilateral).
- Size and orientation changes the shape (Students think that triangles must be oriented with the horizontal base parallel to the bottom of the page. Students consider a triangle with a horizontal base parallel to the top of the page is “upside down.”
- A rhombus can be called a diamond. (A diamond is not a shape. It is a gemstone).
- Pattern blocks or attribute blocks as examples for 2-D shapes. (Pattern blocks have thickness and are therefore 3-D. Note: 2-D shapes are the footprint or outline of the pattern block constructed of line segments.)

In your preparation of materials, the teacher guide recommends copying paper pattern blocks on certain colors to match the pattern blocks. However, to dispel these misconceptions, consider mixing the colors up and/or providing various shapes to enable a focus on shape-defining attributes and characteristics (versus non-defining attributes such as color).

The geometry standards for first grade are expected to be secure at the end of this unit, see the Assessment Binder, Assessment Overview tab, pp. 13-15.

October Number Corner developed foundation of schema for this geometry unit with the Pattern Block Data Collection Graph. In October, students worked on identifying 2-Dimensional shapes such as: triangles, trapezoids, rhombus', and hexagons throughout this month. Students’ experiences with creating composite shapes through October Number Corner Calendar Collector Activity 5 provided a shared experience to draw on as students continue to explore shapes in Unit 5. In December Number Corner, 3-Dimensional shapes made their appearance on the Calendar Grid. Students identified and described cylinders, rectangular prisms, spheres, and cones. These prior experiences support students’ continued work on geometry understandings during this unit. Further, February Number Corner provides opportunities to explore the ideas of rotational geometry and congruency around 2-Dimensional shapes.

### Essential Academic Vocabulary

**Use these words consistently during instruction**

**New Academic Vocabulary:**
Use these words consistently during instruction to begin to develop understanding.
* *a Word Resource Card is available*

<table>
<thead>
<tr>
<th>Side*</th>
<th>Net</th>
<th>Fraction*</th>
</tr>
</thead>
</table>

**Review Vocabulary:**
(Vocabulary taught prior grades or units)

<table>
<thead>
<tr>
<th>Attribute*</th>
<th>Pyramid*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add*</td>
<td>Quarter (one fourth)</td>
</tr>
<tr>
<td>Addition</td>
<td>Rectangle*</td>
</tr>
<tr>
<td>Circle*</td>
<td>Rectangular Prism*</td>
</tr>
<tr>
<td>Compare*</td>
<td>Rhombus*</td>
</tr>
<tr>
<td>Cone*</td>
<td>Rotate/Turn</td>
</tr>
<tr>
<td>Cube*</td>
<td>Solid</td>
</tr>
<tr>
<td>Cylinder*</td>
<td>Sphere*</td>
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<td>Edge*</td>
<td>Square*</td>
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<td>Equal*</td>
<td>Tally</td>
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<td>Equation*</td>
<td>Third*</td>
</tr>
<tr>
<td>Face*</td>
<td>Trapezoid*</td>
</tr>
<tr>
<td>Flat</td>
<td>Triangle*</td>
</tr>
<tr>
<td>Fourth*</td>
<td>Triangular prism*</td>
</tr>
<tr>
<td>Half*</td>
<td>Two-Dimensional shape (2-D)*</td>
</tr>
<tr>
<td>Hexagon*</td>
<td>Three-Dimensional shape (3-D)*</td>
</tr>
<tr>
<td>Parallel Lines</td>
<td>Vertex or Corner*</td>
</tr>
</tbody>
</table>

Additional terminology that students might need support with: actual, actually, identify, information, problem solving, strategies, plus, predict, prediction, slide (move over)

Standards listed in **bold** indicate a focus of the lesson.

**NVACS (Content and Practices)**

<table>
<thead>
<tr>
<th>Big Idea Mathematical Development</th>
<th>Instructional Clarifications &amp; Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module 1- Session 1: What's in the Box?</strong></td>
<td></td>
</tr>
<tr>
<td>1.MD.4 1.G.1</td>
<td>Access Prior Learning:</td>
</tr>
<tr>
<td>MP.1 MP.7</td>
<td>- K.G.2- Correctly name shapes regardless of their orientations or overall size</td>
</tr>
<tr>
<td></td>
<td>- October Number Corner Pattern Block Collection</td>
</tr>
</tbody>
</table>

Developing the Big Idea:

Students will deepen their understanding of the relationship between shapes by organizing two dimensional shapes by attributes. This requires

Instructional NOTE:

- Send your Family Letter home. Find it [here](#).
- Consider starting a KWL chart to pre-assess the misconceptions that students might have about shapes. Do not correct these misconceptions at this time but use this chart as an opportunity for classroom discourse throughout the unit.
- The [pattern block web app](#) will be useful throughout this unit.

-continues on next page-
Developing the Big Idea:

Students will deepen their understanding of the relationship between shapes by organizing two dimensional shapes by attributes. This requires students to analyze and describe shapes by noticing their differences and similarities, and identifying the attributes that define shapes and ones that do not. This will also provide experiences to support students in movement into the Van Hiele Level 1 of understanding.

Child Watching:

- Observe for students who think that a shape’s color or size is a defining attribute. Address this through questioning and classroom discourse techniques.

Module 1- Session 2: Shape Sorting with Attribute Cards

Access Prior Learning:

- K.G.2: Correctly name shapes regardless of their orientations or overall size
- October Number Corner Pattern Block Collection

Instructional NOTE:

- This lesson presents opportunities to discuss triangles and might bring out the misconceptions. Some students might believe triangles need to be equilateral or have a horizontal base parallel to the bottom of the page. Exposing students to varying triangles such as isosceles and scalene triangles might prevent this misconception from forming. (Students do not need to know the terms isosceles and scalene).
- This lesson will add to their vocabulary to describe shapes by introducing the idea of straight and curved sides and closed shapes with no holes or gaps.
- Another misconception that might arise is the orientation of a shape as a defining attribute (shape is “tipped” on its corner).
- Allow misconceptions to present themselves for rich classroom discussion. Making a statement like “Color doesn’t matter” before students have a chance to discuss their thoughts can limit discussion and student growth. It is the discovery and the classroom statement that fosters the growth, not the direct explanation. “Students with a growth mindset have more positive brain activity when they make mistakes, with more brain regions lighting up and more attention to and correcting of errors.” (Moser et al., 2011, pp. 1484-1489).

Enrichment: See Extension in the margin (p. 16)

Child Watching:

- Observe for students with the following misconceptions about shapes:
  - Color, size, or orientation as a defining attribute
  - Leaving gaps or curved edges on drawings
  - Triangles are only triangles if they are equalateral

Module 1- Session 3: Last Shape in Wins

Access Prior Learning:

- K.G.2: Correctly name shapes regardless of their orientations or overall size
- K.G.6: Compose simple shapes to form larger shapes

Instructional NOTE:

- See the online digital Work Place game: Last Shape In Wins (Copy and paste)
  https://bridges.mathlearningcenter.org/digital-materials/work-place-5a-last-shape-wins
- See the Work Place Sentence Frames for Unit 5 here.
- Last Shape in Wins is recommended as a Work Place game to enter in Infinite Campus (see Q3 Grading suggestion document).
- These lessons are heavy in vocabulary. Remember to utilize the Vocabulary Resource Cards, post them and review them.
- Read the Math Practices in Action in the margin (p. 22)

Enrichment: See the Game Variations on Work Place Instructions (p. T5)

Child Watching:

- Observe for students unsure of the names of the shapes or having difficulty telling them apart (See p. T4 for support).

Module 1- Session 4: Pattern Block Puzzles: How Many Ways?

Access Prior Learning:

- K.G.2: Correctly name shapes regardless of their orientations or overall size
- K.G.6: Compose simple shapes to form larger shapes
- Previous Sessions in Unit 5

Instructional NOTE:

- See the online digital Work Place game: Pattern Block Puzzles (Copy and paste)

Enrichment: See the Assessment and Differentiation Chart on Work Place Guide (p. T6)

-continues on next page-
**Module 1- Session 5: There's a Shape in My Pocket**

**Access Prior Learning:**
- K.G.2- Correctly name shapes regardless of their orientations or overall size
- K.G.6-Compose simple shapes to form larger shapes
- Previous Sessions in Unit 5

**Developing the Big Idea:**
Students will deepen their understanding of the relationship between shapes by discussing the rhombus and comparing it with other two-dimensional shapes by attributes. The activity requires them to analyze shapes by noticing the differences and similarities and identifying the attributes that define the shapes. Students will also continue to develop an understanding of composing or decomposing shapes. The idea of 3 triangles fitting into a trapezoid shape etc. begins building the idea of parts and wholes. This will provide experiences to support students in movement into the Van Hiele Level 1.

**Instructional NOTE:**
- Tune into the idea students might present that a rhombus is a diamond. This is a misconception that students might have picked up through media or other sources. Address this by reinforcing that a diamond is a type of rock, not a shape. Note: A square is both a rhombus and a rectangle.
- For teacher knowledge, every rhombus is a kite. However, not every kite is a rhombus. A rhombus is an equilateral with all four sides equal length. A kite has one pair of adjacent sides equal in length and a second pair of equal lengths. This doesn’t need to be shared with students at this time, but it is good background information to know.

**Enrichment:** See the Extension activity in margin (p. 38)

**Child Watching:**
- Observe for students focusing on the faces of the objects, calling a cube a square, and correct the terms consistently
- Observe students using vocabulary to describe the shape attributes.
- Observe for students unsure of the names of the shapes or having difficulty telling them apart (See p. 76 for support).

**Module 2- Session 1: Shape Detectives**

**Access Prior Learning:**
- K.G.1- Describe objects in the environment using names of shapes
- K.G.2- Correctly name shapes regardless of their orientations or overall size
- K.G.3-Identify shapes as 2-D or 3-D
- K.G.4-Analyze and compare 2 and 3-D shapes in different sizes and orientations using informal language to describe

**Developing the Big Idea:**
Students will deepen their understanding of the relationship between shapes by discussing two-dimensional shapes and three-dimensional shapes by attributes. The activity requires students to analyze shapes by noticing their differences and similarities and identifying the attributes that define the shapes. This will provide experiences to support students in movement into the Van Hiele Level 1.

**Instructional NOTE:**
- Read the About This Session in the margin (p. 4)
- To prevent misconceptions, think of two-dimensional shapes as an image, shadow or a drawing. The minute you cut out a shape from paper, mathematically there is a very minuscule edge to the paper, although the depth of this “side” is so marginal, there is in fact depth. Consider for this lesson just drawing a circle (or rectangle) on a piece of paper as opposed to actually cutting it out.
- Conversation around the image of the three dimensional shape on the card might need to occur. Show how the artist tries to represent all the sides in the image but address the fact that an artist cannot show all the sides at one time either, but the sides are still there. Also, the artist shows a sphere as 3-dimensional by drawing or shading a shadow to show depth.

**Enrichment:** See the Extension activity in margin (p. 6)

**Child Watching:**
- Observe for students using vocabulary to describe the shape attributes.
- Observe for students focusing on the faces of the objects, calling a cube a square, and correct the terms consistently

**Module 2- Session 2: Mystery Bag Sorting**

**Access Prior Learning:**
- K.G.1- Describe objects in the environment using names of shapes
- K.G.2- Correctly name shapes regardless of their orientations or overall size
- K.G.3-Identify shapes as 2-D or 3-D
- K.G.4-Analyze and compare 2 and 3-D shapes in different sizes and orientations using informal language to describe
- Previous lesson

**Instructional NOTE:**
- Read the Math Practices in Action in the margin (p. 9)

**Enrichment:** See the Extension activity in margin (p. 10)

**Child Watching:**
- Observe for students using vocabulary to describe the shape attributes.
- Observe for students focusing on the faces of the objects, calling a cube a square, and correct the terms consistently
Developing the Big Idea:
Students will deepen their understanding of the relationship between shapes by discussing three-dimensional shapes by attributes. The activity requires students to analyze shapes by noticing their differences and similarities and identifying the attributes that define the shapes. This will provide experiences to support students in movement into the Van Hiele Level 1.

Module 2- Session 3: Shape Walk

1.G.1
1.MD.4
MP.7
MP.8
Access Prior Learning:
- K.G.1- Describe objects in the environment using names of shapes
- K.G.2- Correctly name shapes regardless of their orientations or overall size.
- K.G.3-Identify shapes as 2-D or 3-D
- K.G.4-Analyze and compare 2 and 3-D shapes in different sizes and orientations using informal language to describe.
- Previous lesson

Instructional NOTE:
The following information is intended for teacher background knowledge. Teachers should model precise mathematical language for students to hear, however, students are not expected to use formal names such as “right circular cylinder.”
- Students are likely to generalize shapes in the real world, or have misconceptions. For example, they might select a water bottle as a cylinder. Mathematically a plastic water bottle with hourglass curved face and/or ridges is not truly a cylinder. However, use this as an opportunity to discuss the attributes by posing a question such as, “What attributes does this water bottle have that make you say it is a cylinder?” Honor student thinking and student discovery, while pointing out the attributes, such as the lip on the lid, or the ridges that make it a non-example. Place 3-dimensional solids next to the object for comparison. There are many types of water bottles in a school setting. Some of them will be true (right circular) cylinders, whereas some might not be. See pictures. Note that a straw is another non-example of a cylinder because it does not have bases. Other non-examples of right circular cylinders include soda cans and some containers of canned food. The standard states: 1.G.2- Compose 2-D or 3-D shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) (NVACS, 2010). There are other types of cylinders and cones. It is not necessary to name them or have students identify them. It is only necessary for them to distinguish the attributes that make a true right-circular cylinder and identify when a solid is a non-example.
- Non-examples for right circular cones include: Traffic cones (it has a lip), ice cream cones (it has no base), party hat (it has no base), teepee (no base and not a culturally responsive example). Validate students reasoning of approximate objects (a glue stick is a cylinder, however; it has only one solid base).
- It is a difficult task to find many great examples, so spend the time addressing why a shape doesn’t meet the criteria. Perhaps the Shape Walk becomes more of a “Finding the Rare Shape Hunt” and a celebration occurs if an accurate example is found.

Enrichment: See the Extension activity in margin (p. 13)

Child Watching:
- Observe for students finding non-examples of the solids and ensure you help them discover the different attributes that make it a non-example.

Module 2- Session 4: Cube Studies

1.G.1
1.G.2
MP.4
MP.7
Access Prior Learning:
- K.G.1- Describe objects in the environment using names of shapes
- K.G.2- Correctly name shapes regardless of their orientations or overall size
- K.G.3-Identify shapes as 2-D or 3-D (this includes cubes)
- K.G.4-Analyze and compare 2 and 3-D shapes in different sizes and orientations using informal language to describe.
- Previous lesson

Instructional NOTE:
- Be sure to include an orange pattern block. Although this is actually a rectangular prism, it has two square faces and can be easily confused with a cube. When a student pulls this solid out of the bag, capitalize on the opportunity to discuss the differences.
- A unifix cube is a non-example of a cube due to the protruding affixation feature and the open face.

Enrichment: Work Place Guide Assessment & Differentiation chart (p. T1)

-continues on next page-
### Module 2- Session 5: Four Triangles & One Square

**1.G.1 1.G.2**

**Access Prior Learning:**
- K.G.3-Identify shapes as 2-D or 3-D
- K.G.4-Analyze and compare 2 and 3-D shapes in different sizes and orientations using informal language to describe
- Previous lesson
- Kindergarten students had limited exposure to pyramids, so this content will be new information

**Securing the Big Idea:**
Students will deepen their understanding of the relationship between shapes by composing 1 square and 4 triangles to create a pyramid. This helps students develop the knowledge of defining attributes of a pyramid. This will provide experiences to support students in movement into the Van Hiele Level 1.

**Instructional NOTE:**
- Although students will be building pyramids with 4 triangles and a square, pyramids can be made with other shapes as the base.
- The Assessment Binder under the Bridges Unit Assessment tab provides the scoring guide for this checkpoint (p. 51) It can also be downloaded from the site and scores can be entered digitally to create a color coded spreadsheet. [https://bridges.mathlearningcenter.org/implementation](https://bridges.mathlearningcenter.org/implementation) Click the link labeled “assessment tools” on the right hand side of this webpage.
- Read the Math Practices in Action in the margin (p. 26)

**Enrichment:** See the Extension activity in margin (p. 26)

**Child Watching:**
- Use the scoring guide to assess students and inform your instruction.

---

### Module 3- Session 1: Nine-Patch Inventions

**1.OA.6 1.G.1 1.G.2**

**Access Prior Learning:**
- Activate prior knowledge about quilts, perhaps bring in an example, or show images.
- There are various suggested literature connections listed on p. 4 that can be read to the class to build background knowledge of quilting.

**Developing the Big Idea:**
Students will deepen their understanding of the relationship between shapes by composing a large square out of 9 smaller squares building onto the part/part/whole relationship. This will provide experiences to support students in movement into the Van Hiele Level 1.

**Instructional NOTE:**
- Make a deliberate connection to the idea the different shapes can be composed to make a whole shape, just as parts of an addition equation compose to create a sum. This supports the part/part/whole reasoning students are developing.
- The blog titled, “Four Cs Digital Learning & Bridges” helps take this lesson to the next level to support the 21st Century learning environment, using the Number Frames App. [https://bridges.mathlearningcenter.org/implementation/blog/four-cs-digital-learning-bridges](https://bridges.mathlearningcenter.org/implementation/blog/four-cs-digital-learning-bridges)

**Child Watching:**
- Observe for students making connections to the parts and wholes (e.g. 3 and 6 are both parts to the whole of 9).

---

### Module 3- Session 2: Nine-Patch Mini-Quilts

**1.G.2**

**Access Prior Learning:**
- Activate prior knowledge about quilts, perhaps bring in an example, or show images.
- There are various suggested literature connections listed on p. 4 that can be read to the class to build background knowledge of quilting.
- There is a page in the margin (p. 26) that can be used to support the part/part/whole relationship this lesson is building.

**Developing the Big Idea:**
Students will deepen their understanding of the relationship between shapes by composing a large square out of smaller squares building onto the part/part/whole relationship. This will provide experiences to support students in movement into the Van Hiele Level 1.

**Instructional NOTE:**
- Read the About This Session in the margin (p. 8)
- This session's value is in moving complex shapes around and combining them using the quilt as a context. “As students combine shapes, they continue to develop their sophistication in describing geometric attributes and properties and determine how shapes are alike and different, building foundations for measurement and initial understandings of properties such as congruence and symmetry” (K-5 Progression on Geometry, pp. 8-9).
- Emphasize Math Practice 7 in this lesson and help students look for and make use of structure.

**Child Watching:**
- Observe for students experimenting with the ideas and seeing results of combined shapes. How are they making sense of structure and using it?

---

### Module 3- Session 3: Sandwich Fractions

**1.G.1 1.G.3**

**Access Prior Learning:**
- Kindergarten students were not exposed to fractional parts, only the idea of composing shapes with smaller shapes. K.G.6-

**Instructional NOTE:**
- Read the Math Practices in Action in the margin (p. 15)

-continues on next page-
**Module 3- Session 4: Paper Pizzas**

<table>
<thead>
<tr>
<th>MP.6 MP.7</th>
<th>Compose simple shapes to form larger shapes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Developing the Big Idea:</strong></td>
<td><strong>Access Prior Learning:</strong></td>
</tr>
<tr>
<td>Students will deepen their understanding of the relationship between shapes by partitioning a large square into smaller equal fractional pieces, and giving a name to those pieces building onto the part/part/whole relationship.</td>
<td>Kindergarten students were not exposed to fractional parts, only the idea of composing shapes with smaller shapes. K.G.6-Compose simple shapes to form larger shapes. Previous lessons</td>
</tr>
<tr>
<td>Instructional NOTE:</td>
<td><strong>Instructional NOTE:</strong></td>
</tr>
<tr>
<td>See the notes above about fraction labeling. Even though the materials suggest labeling the parts with ( \frac{1}{2} ) or ( \frac{1}{4} ) label these with the words &quot;one-half&quot; or &quot;one-fourth,&quot; not the symbol. Reinforce the idea of fractions as numbers by counting them using the language one-fourth, two-fourths, three-fourths, four-fourths.</td>
<td>See the notes above about fraction labeling. Even though the materials suggest labeling the parts with ( \frac{1}{2} ) or ( \frac{1}{4} ) label these with the words &quot;one-half&quot; or &quot;one-fourth,&quot; not the symbol. Reinforce the idea of fractions as numbers by counting them using the language one-fourth, two-fourths, three-fourths, four-fourths.</td>
</tr>
<tr>
<td>Students might want to refer to pieces of a pizza in fourths or smaller as triangles. This is a misconception, as they are not triangles due to the curved side. If this comes up, show a triangle shape and compare with the slice of pizza to highlight the differences.</td>
<td>Students might want to refer to pieces of a pizza in fourths or smaller as triangles. This is a misconception, as they are not triangles due to the curved side. If this comes up, show a triangle shape and compare with the slice of pizza to highlight the differences.</td>
</tr>
<tr>
<td>Enrichment: Ask students to find as many ways as they can to represent fourths. There are several ways students can do this beyond the typical squares and triangles. Consider the possibilities of mixing these ideas as well; perhaps one side is cut into bars, and the other side is cut into squares. This online game, Thirteen Ways of Looking at a Half would be a great tool to enrich as suggested by the Bridges educator site.</td>
<td>Enrichment: See Step 12 (p. 20)</td>
</tr>
</tbody>
</table>

-continues on next page-
### Module 3- Session 5: Fraction Bingo

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
<th>Instructional NOTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.G.3 Kindergarten students were not exposed to fractional parts, only the idea of composing shapes with smaller shapes. K.G.6- Compose simple shapes to form larger shapes</td>
<td>The fraction bingo cards do have the symbol 1/2 etc. written on the cards. It is okay to leave this, however, take a sharpie and add to the card the words one-half or halves to reinforce the standard.</td>
</tr>
<tr>
<td>MP.2 Previous lessons</td>
<td></td>
</tr>
<tr>
<td>MP.7</td>
<td></td>
</tr>
</tbody>
</table>

**Securing the Big Idea:**
Students will deepen their understanding of the relationship between shapes by partitioning a large square into smaller equal fractional pieces, and giving a name to those pieces building onto the part/part/whole relationship.

**Child Watching:**
- Observe for students’ use of language

### Module 3- Session 6 & 7: Unit 5 Assessment, Part 1 & Part 2 (spread over 2 days)

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
<th>Instructional NOTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.G.1 Kindergarten students were not exposed to fractional parts, only the idea of composing shapes with smaller shapes. K.G.6- Compose simple shapes to form larger shapes</td>
<td>The Assessment Binder under the Bridges Unit Assessment tab provides the scoring guide for the for Unit 4 Assessment (p. 56). It can also be downloaded from the site and be entered digitally to create a color coded spreadsheet. <a href="https://bridges.mathlearningcenter.org/implementation">https://bridges.mathlearningcenter.org/implementation</a> Click the link labeled “assessment tools” on the right hand side of this webpage.</td>
</tr>
<tr>
<td>1.G.2</td>
<td></td>
</tr>
<tr>
<td>1.G.3</td>
<td></td>
</tr>
<tr>
<td>MP.1 Previous lessons</td>
<td></td>
</tr>
<tr>
<td>MP.2</td>
<td></td>
</tr>
<tr>
<td>MP.7</td>
<td></td>
</tr>
</tbody>
</table>

**Securing the Big Idea:**
Most students should be able to show their level security in the big idea of shapes and their relationships to one another, including identifying 2 and 3-D shapes, composing and decomposing shapes. If your students have not secured these ideas, there will be another opportunity to secure them in April Number Corner.

**Instructional NOTE:**
- The Grade 1 Assessment Map in the Assessment Binder under the Overview tab (pp. 13-15) identifies the Geometry Standards as targeted for mastery (secure understandings). That being said, if students are still struggling, consider using the next module as time to provide intensification, and support. Also note that April Number Corner will revisit these standards.

**Child Watching:**
- Use the Scoring Guide to inform your instruction. If any students are not secure, consider pulling for small group support throughout the next week.

### Module 4- Session 1: Shape Riddles

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
<th>Instructional NOTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.G.1 The lessons in the unit leading up to this have provided students with many shape experiences that they will draw upon during this lesson</td>
<td>The online digital resource for this work place, Shape Riddles is found at <a href="https://bridges.mathlearningcenter.org/digital-materials/session-1-shape-riddles">https://bridges.mathlearningcenter.org/digital-materials/session-1-shape-riddles</a></td>
</tr>
<tr>
<td>MP.1 Students have engaged in using nets to build other 3D shapes in previous Work Places</td>
<td></td>
</tr>
<tr>
<td>MP.7</td>
<td></td>
</tr>
</tbody>
</table>

**Securing the Big Idea:**
Most students should be able to show their level of security in the big idea of shapes and shapes relationships to one another by using students’ knowledge of shape attributes and comparing shapes to identify the mystery shape.

**Instructional NOTE:**
- The Grade 1 Assessment Map in the Assessment Binder under the Overview tab (pp. 13-15) identifies the Geometry Standards as targeted for mastery (secure understandings). That being said, if students are still struggling, consider using the next module as time to provide intensification, and support. Also note that April Number Corner will revisit these standards.

**Child Watching:**
- Observe for the language students use when discussing shapes. Begin thinking about which students are in Van Hiele Level 0 and describing shapes as "boxes" or "cicles." Observe which students are in Van Hiele Level 1 and are using the language of geometry, describing shapes by their attributes.
- Observe for understanding of the "whole." You can assess this by frequently asking, "What is the whole?"

### Module 4- Session 2: Shape Sorting & Graphing

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
<th>Instructional NOTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.G.1 K.MD.1- Describe and compare measurable attributes of objects such as length or weight</td>
<td>Shape Sorting and Graphing is recommended as a Work Place grade to enter in Infinite Campus (see Q3 Grading suggestion document).</td>
</tr>
<tr>
<td>1.MD.4 K.MD.2- Directly compare two objects with a measurable attribute in common to see which object has ‘more of”/”less of” the attribute and describe the difference.</td>
<td>Read the Math Practices in Action in the margin (p. 9)</td>
</tr>
<tr>
<td>MP.1 Students engaged in sorting and graphing in the previous unit with their height measurements</td>
<td></td>
</tr>
<tr>
<td>MP.7</td>
<td></td>
</tr>
</tbody>
</table>

**Instructional NOTE:**
- Shape Sorting and Graphing is recommended as a Work Place grade to enter in Infinite Campus (see Q3 Grading suggestion document). |
- Read the Math Practices in Action in the margin (p. 9)

**Enrichment:** Work Place Game Variations (p. T8).

-continues on next page-
• Students will use the knowledge they've gained thus far about shapes to sort them with open categories

**Securing the Big Idea:**
Most students should be able to show their level security in the big idea of shapes and shapes relationships to one another by using students' knowledge of shape attributes and comparing shapes to generate sorting categories.

**Child Watching:**
• Observe for the language students use when discussing shapes. Begin thinking about which students are in Van Hiele Level 0 and describing shapes as "boxes" or "icicles." Observe which students are in Van Hiele Level 1 and are using the language of geometry, describing shapes by their attributes.
• Observe for students' reasoning and deduction skills as they label the columns and generate sorting categories.

### Module 4 - Session 3: More Shape Riddles

**1.G.1**

**MP.1**

**MP.7**

**Access Prior Learning:**
• The previous lessons in this unit provided students with many shape experiences that they will draw upon during this lesson.
• Session 1: Shape Riddles

**Securing the Big Idea:**
Most students should be able to show their level security in the big idea of shapes and shapes relationships to one another by using students' knowledge of shape attributes and comparing shapes to identify the mystery shape.

**Instructional NOTE:**

**Enrichment:** Open ended possibilities for students to create their own riddles for others

**Child Watching:**
• Observe for the language students use when discussing shapes. Begin thinking about which students are in Van Hiele Level 0 and describing shapes as "boxes" or "icicles." Observe which students are in Van Hiele Level 1 and are using the language of geometry, describing shapes by their attributes.
• Observe for students' reasoning and deduction skills as they eliminate shapes that don't fit the clue.

Standards listed in **bold** indicate a focus of the lesson.

### References


First Grade Unit 6: Figure the Facts with Penguins

Big Conceptual Idea: K-5 Progression on Counting and Cardinality and Operations and Algebraic Thinking (pp. 12-17), K-5 Progression on Number and Operations in Base Ten (pp. 6-7), K-6 Progression on Measurement and Data (Measurement Part) (pp. 8-11)

Throughout the unit the Math Practices are introduced and used. Find student friendly posters [here](#).

Links might require you being logged into your Bridges Educator Site. If the link does not work for you, copy and paste the http address into a browser.

<table>
<thead>
<tr>
<th>Mathematical Background:</th>
<th>Unit Essential Questions for the Teacher:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read Bridges Unit Overview pages (pp. i-vi).</td>
<td>What strategies can be used to solve different word problem types, and how can the reasoning strategies already developed support this work?</td>
</tr>
</tbody>
</table>

**Instructional note:**

This unit’s big idea picks up where Unit 4 left off. It continues to work on Phase II of fluency development (flexible, efficient, accurate, and appropriate) applying earlier strategies developed within 10 to solve basic number combinations within 20. While Phase I focuses on constructing meaning and counting strategies, Phase II involves reasoning strategies. Students have begun to develop addition and subtraction strategies in previous units, and in this unit, students apply these strategies to word problems of all types to develop a broader understanding of addition and subtraction operations. Students will use the number rack as a tool to make sense of problems that involve unknowns. **Student understanding of the relationships between numbers and the operations of addition and subtraction support the big idea of part-part-whole relationships.**

In Table 1, Common addition and subtraction situations of the Nevada Academic Content Standards (NVACS), twelve different problem types appropriate for first grade development are defined (2010, p.88). “This classification of problem types is based on years of research on how children think about addition and subtraction” (Carpenter, Fennema, Loef Franke, Levi, & Empson, 2015, p. 13). Note that the “add to result unknown” in top left box of the table is the most accessible problem type for students as they can directly model the action in the problem. The problem types in the table increase in complexity from left to right. Comparison problems are considered most challenging for first grade students. Teachers might easily differentiate problems, by changing the wording (context), using this chart as an example. Teachers might also differentiate, by using the same problem type, but changing the number quantities within the problem.

“Children’s ability to solve word problems depends to a great degree on their ability to understand and model the action or situation in the problem. Variations in the wording of the problems and in the situations they depict can make a problem more or less difficult for children to solve. We can make problems easier for children by making the action or relationships in the problems as clear as possible and using contexts that are familiar to the children in the class such as games some children play at home, things that a child collects....” (Carpenter et al., 2015, p. 12).
Therefore, teachers will see a variety of strategies that students use to approach solving these problems such as: **direct modeling** the action and relations in problems, **counting strategies**, and **derived number facts**. When directly modeling the actions, teachers-observe students physically representing all three quantities in a problem and the action or relationship involving those quantities before counting the resulting set. For example, when given a word problem (e.g. John had 11 marbles and his friend gave him 7 more marbles for his birthday. How many marbles does he have now?) students will use manipulatives or drawings to make a set of 11 and then make a set of 7. They will push them together and count the resulting set. A counting strategy is easy to identify because students will abstract one number, typically, by holding a number in their head, or conserving it, and work from there. For example, students recognize that it is not necessary to actually construct each set. Students might count on from 11, using physical objects, such as fingers to keep track of counts. A Derived Fact is when students use a fact or strategy that they do know to help them with an unknown fact. For example, with 11+7 the students might know 10+7 already, then use that knowledge to add just one more (as one more than 10 is 11). “All of the strategies described come naturally to young children. Children do not have to be taught that a specific strategy goes with a particular type of problem. With opportunity and encouragement, children construct for themselves strategies that model the action or relationship in a problem. Similarly, they do not have to be shown how to count on or be explicitly taught specific Derived Facts. In an environment that encourages children to use procedures that are meaningful to them, they will construct these strategies” (Carpenter et al., 2015, p. 4).

It is important to watch students solve these problems. Select students to share their thinking and strategy in a staircase of complexity model. For example, choose a student who used **direct modeling** to share first, then select someone who used a **counting strategy** next. The reason for doing this is to create equal opportunity for all students to access the thinking of others. Sharing a strategy all students can understand first allows this equity to occur. The challenge and rigor comes into play when the next “level” of strategy is shared and students who are on the cusp of that level of thinking are encouraged to attempt that strategy next time. Using multiple strategies to solve varying degrees of difficult story problems can engage students in productive struggle. “Children must have the tools and prior knowledge to solve a problem and not be given a problem that is out of reach, because otherwise they will struggle without being productive; however, children should not be given tasks that are straightforward and trivial because they will not struggle with mathematical ideas and further develop their understanding” (Van de Walle, Karp, Lovin, Bay-Williams, 2014, p. 16). Finding this balance is how a teacher can support rigorous classroom instruction, offer the appropriate scaffolding for students through discussion and strategy sharing, and provide multiple entry and exit points for students in problems.

A word of caution to educators when scaffolding for students, “...we do not recommend that children be taught key-word strategies to help them solve problems. Such strategies are ineffective in dealing with anything but a narrow set of problem situations and discourage children from making sense of the problems they solve” (Carpenter et al., 2015, p. 14). In the article, [13 Rules That Expire](https://www.nctm.org/articles/13-rules-that-expire/) (click blue hyperlink to access this complimentary article from NCTM), authors Karp, Bush and Dougherty (2014) describe challenges that occur when keywords lead students to “grab” the numbers from the problem, performing a computation without attending to the meaning of the entire problem.

Throughout the school year, Number Corner provided many opportunities for students to engage in computation through word problems. October Number Corner featured autumnal objects on the calendar markers to elicit student-created “math stories.” These math stories or word problems were developed with input from the class and recorded on the Calendar Grid Observations Charts. January Number Corner featured equations on the calendar markers and invited students to create word problems to match the equations. The equations varied the unknown in all positions to create opportunities to explore result unknown, change unknown and start unknown problems. These are powerful connections to point out to students during Unit 6 instruction.
Essential Academic Vocabulary
Use these words consistently during instruction

<table>
<thead>
<tr>
<th>New Academic Vocabulary:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use these words consistently during instruction to begin to develop understanding. *a Word Resource Card is available</td>
</tr>
<tr>
<td>Count on*</td>
</tr>
<tr>
<td>Foot*</td>
</tr>
<tr>
<td>Join</td>
</tr>
<tr>
<td>Missing addend</td>
</tr>
<tr>
<td>Whole*</td>
</tr>
<tr>
<td>Review Vocabulary:</td>
</tr>
<tr>
<td>(Vocabulary taught prior grades or units)</td>
</tr>
<tr>
<td>Add*</td>
</tr>
<tr>
<td>Addition</td>
</tr>
<tr>
<td>Add nine fact</td>
</tr>
<tr>
<td>Add ten fact</td>
</tr>
<tr>
<td>Closest to</td>
</tr>
<tr>
<td>Combination</td>
</tr>
<tr>
<td>Compare*</td>
</tr>
<tr>
<td>Difference*</td>
</tr>
<tr>
<td>Double</td>
</tr>
<tr>
<td>Doubles fact</td>
</tr>
<tr>
<td>Doubles plus or minus one fact</td>
</tr>
<tr>
<td>Double ten-frame</td>
</tr>
<tr>
<td>Equal*</td>
</tr>
<tr>
<td>Equation*</td>
</tr>
<tr>
<td>Even number*</td>
</tr>
<tr>
<td>Fact family*</td>
</tr>
<tr>
<td>False</td>
</tr>
<tr>
<td>Greater than*</td>
</tr>
<tr>
<td>Height*</td>
</tr>
<tr>
<td>Inch*</td>
</tr>
<tr>
<td>Join</td>
</tr>
<tr>
<td>Less than*</td>
</tr>
<tr>
<td>Make ten fact</td>
</tr>
<tr>
<td>Measure</td>
</tr>
<tr>
<td>More than</td>
</tr>
<tr>
<td>Pattern*</td>
</tr>
<tr>
<td>Separate</td>
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<tr>
<td>Shorter than</td>
</tr>
<tr>
<td>Story problem</td>
</tr>
<tr>
<td>Subtract*</td>
</tr>
<tr>
<td>Subtraction</td>
</tr>
<tr>
<td>Sum or Total*</td>
</tr>
<tr>
<td>Triangle*</td>
</tr>
<tr>
<td>True</td>
</tr>
<tr>
<td>Ten frame</td>
</tr>
<tr>
<td>Taller than</td>
</tr>
<tr>
<td>Unknown Number</td>
</tr>
</tbody>
</table>

Addition:

- Count on*
- Foot*
- Join
- Missing addend
- Whole*

Review Vocabulary:

- Add*
- Addition
- Add nine fact
- Add ten fact
- Closest to
- Combination
- Compare*
- Difference*
- Double
- Doubles fact
- Doubles plus or minus one fact
- Double ten-frame
- Equal*
- Equation*
- Even number*
- Fact family*
- False
- Greater than*
- Height*
- Inch*
- Join
- Less than*
- Make ten fact
- Measure
- More than
- Pattern*
- Separate
- Shorter than
- Story problem
- Subtract*
- Subtraction
- Sum or Total*
- Triangle*
- True
- Ten frame
- Taller than
- Unknown Number

Additional terminology that students might need support with:
chart, strategy, take-away, minus, observation, plus, pair, partner

Standards listed in **bold** indicate a focus of the lesson.

<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>1.OA.1 1.OA.5 1.OA.6 1.NBT.2</td>
<td>Access Prior Learning:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>K.OA.2- Solve addition and subtraction word problems, and add and subtract within 10, by using objects or drawings to represent the problem</td>
<td></td>
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<tr>
<td></td>
<td>Unit 4 Module 4 sets the stage for this work</td>
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<td></td>
<td>Subitizing</td>
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<tr>
<td></td>
<td>Developing the Big Idea: Students will deepen their understanding of the relationships between numbers and the operations of addition and subtraction through supporting the big idea of composition and decomposition as they solve story problems about penguins.</td>
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<tr>
<td></td>
<td>Instructional NOTE:</td>
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<tr>
<td></td>
<td>Send home the Family Letter found <a href="#">here</a>.</td>
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<tr>
<td></td>
<td>This teacher tool by Visnos, suggested on the Bridges Educator site, animates penguins on icebergs. Use the round sliding toggles at the bottom to select the number of penguins on each iceberg.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>See the digital display of Baby Penguins (p. T1) for this lesson <a href="https://bridges.mathlearningcenter.org/digital-materials/session-1-penguins-ledges">https://bridges.mathlearningcenter.org/digital-materials/session-1-penguins-ledges</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Read the Math Practices in Action in the margin (p. 5).</td>
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</tr>
<tr>
<td></td>
<td>This problem type is an add to result unknown, the easiest problem type. Teachers might see students needing to direct model using their number rack. Students might count out 10 by 1s, then slide and count another 2, finally starting over from 1 and counting all 12 beads by 1s. This is likely the least sophisticated strategy teachers will see. Other students might slide over 10 beads without counting individual beads and count on saying “11, 12.” This is a counting-on strategy. Other students might use the anchor of 10 as a friendly number and easily add 2 mentally. When selecting students to share, begin with someone who direct modeled and then choose someone who employed a counting strategy or derived fact.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Enrichment: See Step 10 (p. 6)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Child Watching:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Observe for students direct modeling with cubes or number racks. Support by suggesting students “challenge themselves and try Johnny’s (enter your own student’s name) strategy and count on by holding a number in their head. This is a big idea called Conservation of Number and needs to be developed to successfully use the counting-on strategy.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Observe for students using the counting-on strategy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Observe for students who mentally add and provide the challenge option in step 10.</td>
<td></td>
</tr>
</tbody>
</table>
### Module 1- Session 2: Penguin Huddles & Penguin Pals

**Access Prior Learning:**
- 1.OA.1: Solve addition and subtraction word problems, and add and subtract within 10, by using objects or drawings to represent the problem
- 1.OA.5: Adding and subtracting within 20
- 1.OA.6: Mentally adding and subtracting within 20
- 1.OA.7: Understanding the meaning of the equal sign
- 1.OA.8: Analyzing the relationship between addition and subtraction
- 1.OA.9: Understanding the commutative property of addition
- 1.NBT.2: Understanding place value
- MP.2: Mathematical Practice 2: Reason abstractly and quantitatively
- MP.7: Mathematical Practice 7: Look for and make use of structure

**Instructional NOTE:**
- The first problem is an add to change unknown problem type, which is more difficult than the previous lesson.
- Be sure to introduce the new “count on” vocabulary card as well as discuss “missing addend” (no card).

**Developing the Big Idea:**
Students will deepen their understanding of the relationships between numbers and the operations of addition and subtraction through composition and decomposition as students solve story problems about penguins.

**Enrichment:**
See Step 11 (p. 11)

**Child Watching:**
- As this is a more challenging problem type, many students might need to direct model. On a number rack this might look like: students count out 10 on the top, then add by 1s to the bottom until they get to 14. Then students go back and count the four on the bottom they added to find the missing addend. 10 + ___ = 14
- Observe for students using the Counting On strategy, conserving the first number in their head and counting up until they arrive at the result.
- Some students might mentally derive the fact without using manipulatives or counting strategies.
- Make a note taker to keep track of which students are doing which strategy to inform your instruction. It is hopeful that a majority of your students will be using reasoning strategies (Phase 2 of fluency development) to derive the facts (use known facts to solve unknown facts). Students using direct model consistently should be guided towards trying the other more efficient strategies.

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### Module 1- Session 3: Penguin Egg Doubles

**Access Prior Learning:**
- 1.OA.6: Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
- 1.NBT.1: Mental computation with 110 or less
- MP.2: Mathematical Practice 2: Reason abstractly and quantitatively
- MP.7: Mathematical Practice 7: Look for and make use of structure
- MP.8: Mathematical Practice 8: Look for and express regularity in repeated reasoning

**Instructional NOTE:**
- Read the Math Practices in Action in the margin (p. 17).
- This lesson will support repeated reasoning abilities and the transition into using doubles as a reasoning strategy for fluency development.
- See the digital display materials [https://bridges.mathlearningcenter.org/digital-materials/session-3-penguin-egg-doubles](https://bridges.mathlearningcenter.org/digital-materials/session-3-penguin-egg-doubles)

**Developing the Big Idea:**
Students will deepen their understanding of the relationships between numbers and the operations of addition and subtraction through supporting the big idea of composition and decomposition as they solve story problems about penguins. Students will strengthen understanding of doubles facts to support their fluency development and use of doubles facts to create a reasoning strategy of doubles + and doubles -.

**Enrichment:**
Using two dice will increase the number to double, leading to sums beyond 20

**Child Watching:**
- Watch for students who struggle and encourage the use of just one die

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### Module 1- Session 4: Nine Fish, Ten Fish

**Access Prior Learning:**
- 1.OA.1: Solve addition and subtraction word problems, and add and subtract within 10, by using objects or drawings to represent the problem
- 1.OA.6: Mentally adding and subtracting within 20
- MP.2: Mathematical Practice 2: Reason abstractly and quantitatively
- MP.4: Mathematical Practice 4: Model with mathematics
- MP.5: Mathematical Practice 5: Use appropriate tools strategically
- MP.7: Mathematical Practice 7: Look for and make use of structure

**Instructional NOTE:**
- See the online digital tools with the add and subtract spinner and cards [https://bridges.mathlearningcenter.org/digital-materials/work-place-6a-spin-win-bingo](https://bridges.mathlearningcenter.org/digital-materials/work-place-6a-spin-win-bingo)
- See the Work Place Sentence Frames for Unit 6 [here](https://bridges.mathlearningcenter.org/digital-materials/work-place-6a-spin-win-bingo)
- These [strategy posters](https://bridges.mathlearningcenter.org/digital-materials/work-place-6a-spin-win-bingo) for addition might be useful to support students in using +10 and +9 facts.
- Read the About This Session in the margin (p. 20)

**Developing the Big Idea:**
Students will deepen their understanding of the relationships between numbers and the operations of addition and subtraction through supporting the big idea of composition and decomposition as they solve story problems about penguins. Students will strengthen their understanding of +10 facts and how to use +10 facts in relation to +9 facts to support student fluency development.

-continues on next page-
In this lesson, the context is centered around penguins eating fish for breakfast and then more for lunch. In step 2, the problem posed is an add to, result unknown. In Step 3, the problem posed is also an add to, result unknown problem.

**Child Watching:**
- Observe for students who are having difficulty using the add 10 or add 9 strategy while playing Spin to Win Bingo. Students might not know where to start or rely on counting by 1s. Use Work Place Guide for suggestions to support (p. T8).
- Take notes on which students are counting by 1s and which students are counting on. It can inform tomorrow’s lesson.

<table>
<thead>
<tr>
<th>Module 1 - Session 5: Fishing for Subtraction Strategies</th>
</tr>
</thead>
</table>
| **1.OA.1**  
**1.OA.4**  
**1.OA.6**  
**MP.2**  
**MP.5**  
**MP.8**  |
| **Access Prior Learning:**  
- K.OA.2- Solve addition and subtraction word problems, and add and subtract within 10, by using objects or drawings to represent the problem  
- Previous Sessions |

**Instructional NOTE:**
- Read the About This Session in the margin (p. 26)  
- See the Subtraction Strategy Posters.  
- In step 3, the introductory problem is a take from, result unknown problem type. Bridges calls this the Take Away strategy.  
- In step 7, a second problem is posed and it is a compare, difference unknown problem type. This problem type is more challenging. Students might struggle with trying to direct model these types of problems and might need support and scaffolding. “Comparison problems involve comparing two quantities. The third quantity in these problems does not actually exist but is the difference between the two amounts” (Van de Walle et al., 2014, p. 129). “The challenge in comparison problems comes from the fact that two quantities are being described using language that can be complex for children. Fewer, less than, more, bigger, and greater than are the terms typically used to describe the relationships in comparison problems” (Van de Walle et al., 2014, p. 131).  
- In step 12, problem #3 is posed. It is a take from, result unknown problem type, making it an easier problem than #2. Consider rearranging these and solve problem #3 prior to problem #2.  
- In step 16, More Molly & Ollie Stories (found on p. T13) is a set of additional word problems to present and discuss with students.  
  - Problem #1 is another compare, difference unknown problem type. This problem type is particularly challenging for students because there is no physical action to model or act out. Students might direct model by creating a set of 12 objects to represent the 12 fish that Ollie caught and a separate set of 9 objects to represent the 9 fish Molly to catch. Then they must determine the relationship between the quantities and compare the two sets. Students may have difficulty devising a plan to compare the sets. A common direct modeling strategy is match objects from the set one to one until one set is used up. The number of unmatched objects remaining in the larger set indicates how many more are in the larger set. The dialogue in Step 16 presents a more sophisticated counting up strategy in which the student does not make a set of objects for each quantity. The student models 9 and counts up to 12 and determines 12 is 3 more than 9.  
  - Problem #2 is a take from, result unknown problem type.  
  - Problem #3 is a take from, result unknown problem type.  
  - Problem #4 is a compare, difference unknown problem type.  

**Enrichment:** The nature of these problem types is enriching, and students can try more than one strategy on each problem.

**Child Watching:**
- Observe and document what students are using which strategies.  
- Watch for students struggling with the comparison problem types and scaffold with manipulatives, perhaps use cubes as well as the number rack.  
- Connect the comparison situation with a story that is more familiar in context than penguins and fish. Sharing cookies with a sibling or friend might be a more relatable context.
### Module 2 - Session 1: Double-Flap Dot Cards Ten to Twenty

**Access Prior Learning:**
- K.OA.1 - Represent addition and subtraction with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions or equations
- K.OA.2 - Solve addition and subtraction word problems, and add and subtract within 10, by using objects or drawings to represent the problem
- K.OA.3 - Decompose numbers less than or equal to 10 into pairs in more than one way
- Subitizing
- Previous Sessions and Unit 2 Module 2 Session 1

**Developing the Big Idea:**
Students will deepen their understanding of the relationships between numbers and the operations of addition and subtraction through supporting the big idea of composition and decomposition as they solve story problems about penguins. Students will strengthen their understanding of subtraction problems and explore different strategies to solve subtraction problems. Relating the subtraction problem to a related addition problem supports the part-part-whole relationships.

**Instructional NOTE:**
- The idea of the "fact family" made its appearance the last time Dot Cards were used in Unit 2. Students might remember how to relate this concept to their real lives by stating that each family is made up with different members. Consider drawing a house on the board, putting the three numbers in the corners of the roof's triangle, and writing the corresponding facts in the box.

**Enrichment:** Challenge students to create story problems that are more complex, like a change unknown, start unknown, or comparison problem.

**Child Watching:**
- Observe for students who confuse the subtrahend and the minuend in their subtraction equation. (No need to teach students those terms yet.)
- Check for understanding of the written addition equations. Determine if students can explain the parts of the equation, such as which number represents the total, what each symbol means, which number represents the quantity on the left side of the card and which number represents the quantity on the right side of the card.
- Check for understanding of the written subtraction equations. Determine if students can explain the parts of the equation, such as which number represents the total and why it is placed to the left of the minus sign. Have students act out the equation with objects or use the corresponding double flap card to check for mistakes.

---

### Module 2 - Session 2: Double-Flap Penguin Picture Cards

**Access Prior Learning:**
- K.OA.1 - Represent addition and subtraction with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions or equations
- K.OA.2 - Solve addition and subtraction word problems, and add and subtract within 10, by using objects or drawings to represent the problem
- K.OA.3 - Decompose numbers less than or equal to 10 into pairs in more than one way
- Subitizing
- Previous Sessions and Unit 2 Module 2 Session 1

**Developing the Big Idea:**
Students will deepen their understanding of the relationships between numbers and the operations of addition and subtraction through supporting the big idea of the part-part-whole relationships as they solve story problems about penguins. Students will strengthen their understanding of subtraction problems and explore different strategies to solve subtraction problems. Relating the subtraction problem to a related addition problem supports the part-part-whole relationships.

**Instructional NOTE:**
- Read the About This Session in the margin (p. 12)
- Read the Math Practices in Action (p. 15)
- Double-Flap Penguin Picture Cards p. 1 shows the combination of 4 and 10. In Step 5, the sample discussion shows how students might consider the various combinations to make 14 that could be hiding under the flaps. Guide students towards considering Doubles Plus or Minus One fact, an Add Ten fact or Add Nine fact. They should eliminate a Doubles Plus One fact (7 + 8 = 15 and 7 + 6 =13).
- Double-Flap Penguin Picture Cards p. 2 shows the combination of 6 and 7. This is a Doubles Plus One fact.
- Double-Flap Penguin Picture Cards p. 1 shows the combination of 9 and 4. This is an Add Nine fact.

**Enrichment:** Challenge students to create story problems that are more complex, like a change unknown, start unknown, or comparison

**Child Watching:**
- Observe for students who are still counting all or counting up from the quantity that is less on the Double-Flap cards. Refer to the addition strategy posters and ask students to identify what type of fact they worked on and model how to use the more efficient strategy to add the quantities. In step 18, create a practice opportunity by giving the students number combination that lends itself to the strategy you modeled. Students can use this number combination to create their personal Double-Flap card.

---

### Module 2 - Session 3: Penguins Marching Two by Two

**Access Prior Learning:**
- K.OA.1 - Represent addition and subtraction with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions or equations
- K.OA.2 - Solve addition and subtraction word problems, and add and subtract within 10, by using objects or drawings to represent the problem

**Instructional NOTE:**
- Read the About This Session in the margin (p. 18)
- Be cautious not to turn this into an "even or odd" lesson, as that is a 2nd grade standard. Keep the focus on the idea of doubles + 1 or – 1.

-continues on next page-
using objects or drawings to represent the problem
- K.OA.3- Decompose numbers less than or equal to 10 into pairs in more than one way
- Subitizing
- Previous Sessions

**Developing the Big Idea:**

- Students will deepen their understanding of the relationships between numbers and the operations of addition and subtraction through supporting the big idea of composition and decomposition as they solve story problems about penguins. Students will strengthen their understanding of addition problems and explore different strategies to solve addition problems.

- See the online digital display of Can They March in Pairs: https://bridges.mathlearningcenter.org/digital-materials/session-3-penguins-marching-two-two - page_0
  Add two shades using the shade button to keep the rest of the sheet covered.

- "Near doubles are also called the "Doubles Plus One" or "Doubles Minus One" facts and include all combinations in which one addend is one more or one less that the other. This strategy uses a known fact to derive an unknown fact. Double the smaller number and add 1 or double the largest number and subtract 1. Be sure children solidly know the doubles before you focus on this strategy" (Van de Walle et al., 2014, p. 163).

- Students can still work with the problems even if knowledge of doubles isn’t held by all. They can access other strategies they know. "The reality is there is no one "best" strategy for any fact. For example, 7+8 could be solved using Up Over 10 or near-doubles. The more you emphasize choice, the more children will be able to find strategies that work for them, which will lead to fluency" (Van de Walle et al., 2014, p. 165).

- Note: Up and Over 10 strategy: children use known facts that equal 10 and then add the rest of the number onto 10. Example: 6+8, students recognize that 8+2 is 10, then add on the remaining 4. (Van de Walle et al., 2014, p. 161).

**Enrichment:** Challenge students to solve the problems using multiple strategies.

**Child Watching:**

Observe for students who have difficulty solving double facts and support with using other strategies while noting they need extra time to work on doubles in a meaningful way, such as real world examples of doubles and pair-wise ten frame dot cards. There are ten doubles facts from 0 + 0 to 9 + 9. Children often discover the pattern of doubles and the mathematical idea that when a number is doubled it is joining two equal groups. These doubles become anchors for other facts. The goal is that students will later use doubles to derive other facts.

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**Module 2 - Session 4: Addition Facts Flash**

<table>
<thead>
<tr>
<th>1.OA.6</th>
<th>Access Prior Learning:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>K.OA.1- Represent addition and subtraction with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions or equations</td>
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</tr>
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<td></td>
<td>K.OA.3- Decompose numbers less than or equal to 10 into pairs in more than one way.</td>
</tr>
<tr>
<td></td>
<td>Subitizing</td>
</tr>
</tbody>
</table>

**Instructional NOTE:**

- Read the About This Session in the margin (p. 24)
- The importance of this lesson is not so much about collecting the facts that align to each category as “Doubles, or Doubles Plus or Minus One” etc. It is more about helping students understand that some strategies are more appropriate to use than other strategies depending on the numbers. Students need to be able to select and accurately apply methods that are appropriate for the context and the numbers involved by choosing an appropriate strategy. Create space in the conversation to discuss the selection of strategies.

**Enrichment: Work Place Game Variations (p. T9)**

**Child Watching:**

- Observe for students struggling with identifying what strategy would be appropriate for certain facts.
- Observe for students still functioning in counting strategies instead of using derived facts.

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**Module 2 - Session 5: Pick Two to Make Twenty**

<table>
<thead>
<tr>
<th>1.OA.1</th>
</tr>
</thead>
<tbody>
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<td></td>
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</tbody>
</table>

**Instructional NOTE:**

- Read the About This Session in the margin (p. 30)
- Read the Math Practices in Action in the margin (p. 31)

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**--continues on next page--**
Module 3 - Session 1: Penguin Problems: Joining

Access Prior Learning:
- K.OA.1- Represent addition and subtraction with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions or equations
- Kinder students worked on one of the problem types in this lesson, add to, result unknown
- Extended lessons in Unit 3 on commutativity and associativity.

Developing the Big Idea:
Students will deepen their understanding of the relationships between numbers and the operations of addition and subtraction through supporting the big idea of composition and decomposition. Students will strengthen their understanding of addition problems and the use of different addition strategies.

Instructional NOTE:
- To provide learning opportunities to support 1.OA.2 this session is recommended to be extended over 2 days.
- Thinking about the Problem Situation Table, from the standards and the beginning of this document, these problems will be in the Add To row (NVACS, 2010, p.88).

Day 1: Complete lesson using the notes below:
- The first problem posed is an add to, result unknown problem type. The easiest of all problem types. Teachers might see students using 3 strategy types:
  - Direct model: Draw or count out 9 & 5
  - Counting Strategy: Not representing the 9 or 5 at all, but just counting up
  - Derived Fact: 9 is close to 10+5=15, so it is one less than 15

The lesson suggests demonstrating a derived fact strategy with the number rack. Some students might not need to use the number rack to do this. Step 3 states “Ask students to solve it on their number rack.” Perhaps rephrase this with “Solve this however you would like.” Then draw from the strategies seen around the room for the conversation.

- The second problem posed is an add to, change unknown problem type. Again, consider suggesting they solve it anyway they like. This will be more difficult. Teachers might see students using 3 strategy types:
  - Direct model: Draw or count out 8 penguins, then slide more until they reach 12
  - Counting Strategy: Abstracting 8 (holding it in their head) then counting up until they reach 12
  - Derived Fact: I know that 8+2 is 10, and if I had 2 more it’ll be 12. So 2+2 is 4.

- If your students have difficulty with these two problems, consider changing the numbers and continue working with these two problem types instead of doing the third problem type.

- The third problem is an add to, start unknown. This is a very difficult problem for 1st graders. Students should be exposed to this type of problem, but the standards don’t call for security of this until 2nd grade. This problem type is difficult because direct modeling is difficult and relies on a grab, check and adjust strategy for dealing with the start unknown. If students were direct modeling the other two problems, they might struggle with this. Students who direct model follow the problem in order as it is written. This problem starts with “Some penguins.” Teachers might see students attempt this by just grabbing “some” cubes or move “some” beads. Then students will move/add 5 more and check to see if it is 11. Students might do this over and over in a guess and check method until they come to 11. Then students will go back and count the ones they started with.

The assessment binder under the Bridges Unit Assessment tab provides the scoring guide for this checkpoint (p. 65). It can also be downloaded from the site and scores entered digitally to create a color coded spreadsheet. https://bridges.mathlearningcenter.org/implementation See the right hand side where it says, “assessment tools.”

Combinations & Stories Checkpoint p. 2
Problem #3a is an add to, result unknown problem type.
Problem #3b is an add to, change unknown problem type.

Child Watching:
- Observe for students struggling to select two numbers that will be closest to 20. The game might be adjusted for a target to 10.
- Observe student strategy selection for combining numbers. What strategies are students using? Is the strategy appropriate/efficient for the numbers?
- Use the Scoring Guide (p. 65) to assess students and inform your instruction.

-continues on next page-
Day 2:
• The following task addresses 1.OA.2, and continues addressing the properties of associativity and commutativity. This task and a rubric for assessing it is available in the Q3 Grading Suggestions documents, found on the C & I webpage.

We have eight penguins and three ledges - one large, one medium-sized and one small.

There are 5 penguins on the large ledge, 2 on the medium ledge and 1 on the small ledge.

Can you find another way to place penguins so that there are the most on the large ledge and least on the small ledge?

Try to find as many ways as you can to put the penguins on the ledges with the most on the large ledge and the least on the smallest ledge. If you think you have found them all, explain how you know those are all the possibilities.

Enrichment: See Step 11 or change the numbers in the problem and provide another opportunity (p. 7).

Child Watching:
• Observe for student strategies. Are students direct modeling? Are students using a counting strategy? Are students using a derived fact? Select students to share in that order.
• Observe for students applying the Commutative and Associative Properties.

Module 3- Session 2: Penguin Problems: Separating

<table>
<thead>
<tr>
<th>1.OA.1</th>
<th>1.OA.4</th>
<th>1.OA.6</th>
<th>1.OA.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP.1</td>
<td>MP.3</td>
<td>MP.7</td>
<td></td>
</tr>
</tbody>
</table>

Access Prior Learning:
- K.OA.1- Represent addition and subtractions with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions or equations
- Kinder students worked on one of the problem types in this lesson, take from, result unknown

Instructional NOTE:
- Teachers might consider using an A/D/E day and extending this lesson across 2 days.
- Thinking about the Problem Situation Table, found in the standards and at the beginning of this document, today’s problems will be in the Take From row 2 (NVACS, 2010, p. 88).
- The first problem posed is a take from, result unknown problem type. Kinder students worked with these problem types, therefore, you might consider posing the problem and sending students to solve it however they want. You might see students using 3 strategy types:
  - Direct model: Draw or count out 12, remove 3, and then count the 9 remaining
  - Counting Strategy: Not representing the 12 at all, but just counting back 11, 10, 9.
  - Derived Fact: 12 - 2 is 10, and one less is 9.
  - The lesson suggests demonstrating a derived fact strategy with the number rack. Some students might not need to use the number rack to do this. Instead ask these students to use it or another tool to justify their thinking and reasoning. Step 3 states “Ask students to solve it on their number rack.” Perhaps rephrase this with “Solve this however you would like.” Then draw from the strategies you see around the room for the conversation, focusing the conversation on efficient strategies for the numbers or the context provided.
- If many students struggled with the first problem, consider changing the numbers and engage students in another take from, result unknown problem.
- If your students were successful with the first problem, move forward with the second problem, a take from, change unknown problem type. Step 6 suggests that students will likely count up from 8 to 14. This is only true if students are no longer needing to Direct Model. If students are still Direct Modeling, they will follow the steps in the problem exactly as the story presents.

-continues on next page-
Students will count out 14 first, then they will move beads or cubes away until they have 8 left, finally counting how many they moved away. If students no longer need to directly model, they might use a Counting Strategy such as counting back from 14 to 8 on their fingers or number rack, by conserving 14, and saying 13, 12, 11, 10, 9, 8. Students might also use a Derived Fact. For example, one fact they might use is their knowledge of 14-4=10, then subtract 2 more to get 8. 4 and 2 is 6 total.

- The third problem is a take from, start unknown problem. Start unknown problems are much more difficult as students who direct model and follow the problem exactly as it is written will be confused when they see “Some penguins were standing.” These students might attempt to solve the problem by just grabbing “some” cubes, or moving “some” beads over. Through a trial and error system, these students might move cubes back and forth until they get to 9. When students are finally left with 9, they might count how many the “some” was that they started with; other students might not know what to count to find the solution. Students who are using Counting Strategies might count them together by counting up. Derived Fact strategies students to use their knowledge of related addition facts 9+6=15. Note: students might need more time working on this problem.

- Be cautious about trying to turn strategies into a procedure by coaching “when you see this box empty you just need to add, even though there is a subtraction sign.” Allowing students to solve problems in their own way and listen to each other’s strategies will result in more success for this hard work of making sense of the problem and understanding the operations.

**Enrichment:** If students are in the Recall Stage of fluency for these numbers, “I just know it” will be their explanation. If this is the case, you can challenge students by changing the numbers in the problem. Also, see Step 11 (p. 13). The rigor of the start unknown problem types is built into the standards.

**Child Watching:**
- Observe for student strategies. Are students direct modeling? Are students using a counting strategy? Are students using a derived fact? Select students to share in that order.

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### Module 3: Session 3: Counting Penguin Feathers

<table>
<thead>
<tr>
<th>1.OA.1</th>
<th>1.OA.6</th>
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</thead>
<tbody>
<tr>
<td>1.OA.7</td>
<td>1.OA.8</td>
</tr>
<tr>
<td>MP.1</td>
<td>MP.2</td>
</tr>
<tr>
<td></td>
<td>MP.3</td>
</tr>
</tbody>
</table>

**Access Prior Learning:**
- K.OA.1: Represent addition and subtraction with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions or equations
- Kinder students worked on both of the problem types in this lesson, Put Together/Take Apart Result Unknown and Change Unknown

**Developing the Big Idea:**
Students will deepen their understanding of the relationships between numbers and the operations of addition and subtraction through supporting the big idea of the part-part-whole relationships. Students will strengthen their understanding addition and subtraction story problems.

**Instructional NOTE:**
- Read the *About this Session* in the margin, (p. 16).
- Thinking about the Problem Situation table, found in the standards and the beginning of this document, these problems will be in the Put Together/Take Apart, row 3 (NVACS, 2010, p. 88).
- The first problem is a Put Together/Take Apart Result Unknown problem type. Teachers might see students using three strategy types.
  -Direct Model: Students might draw or count out 6 & 4 and then count all
  -Counting Strategy: Not representing both numbers, but just counting up/down from one of the quantities
  -Derived Fact: 9 is close to 10+5=15, so it is one less than 15
The lesson is collecting all the possible combinations (the different parts) that can make the whole.
- Consider just posing the chart, setting the stage for the work, and sending students off to come up with as many combinations as they can, rather than keeping them in a whole group. Reconvene and share out your selected group’s strategy.

*continues on next page*
In making the combinations, students who are direct modeling might need to use black and white cubes and manipulate them to create their combinations. Some students won't care what color the cubes are. Other students might be able to see the patterns in the chart. If we start with $1+9$, then switch one over to the other color it will be $2+8$, then $3+7$. Do not force students to see this, yet be looking for students who might be discovering this repeated reasoning. Choose these students to share as the last share of the day.

Consider collecting a grade on this Work Place. Use the grading rubric 6c attached to the Suggestions for Reporting Progress documents. Note: Allow several days of exposure to the Work Place before collecting a grade.

Enrichment: See Step 12 (p. 18)

Child Watching:
- Observe for student strategies. Are students direct modeling? Are students using a counting strategy? Are students using a derived fact? Select students to share in that order.

### Module 3- Session 4: Comparing Penguins

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
<th>Instructional NOTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- K.OA.1- Represent addition and subtraction with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions or equations</td>
<td>- Thinking about the Problem Situation Table, found in the standards and the beginning of the document, these problems will be in the Compare, row 4 (NVACS, 2010, p. 88). These problems are very difficult for students because the problems are difficult to directly model. Students cannot rely on the words alone in the problem to guide them, they have to use internal knowledge to “know” that they must compare them, and what it means to compare them. This lesson sets up students to develop the knowledge of comparing.</td>
</tr>
<tr>
<td>- Although the standards do not call for kinder students to work with these more difficult problem types, they might have been exposed to them in the Kinder Bridges Materials</td>
<td></td>
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</tbody>
</table>

Developing the Big Idea:
Students will deepen their understanding of the relationships between numbers and the operations of addition and subtraction through supporting the big idea of part-part-whole relationships. Students will strengthen their understanding addition and subtraction story problems, and the use of different strategies to work with them.

### Module 3- Session 5: Unit 6 Assessment

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
<th>Instructional NOTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- K.OA.1- Represent addition and subtraction with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions or equations</td>
<td>- The Assessment Binder under the Bridges Unit Assessment tab provides the scoring guide for the for Unit 6 Assessment (p. 70) It can also be downloaded from the site and scores entered digitally to create a color coded spreadsheet. <a href="https://bridges.mathlearningcenter.org/implementation">https://bridges.mathlearningcenter.org/implementation</a> See the right hand side where it says, “assessment tools.”</td>
</tr>
<tr>
<td>- All the previous sessions</td>
<td></td>
</tr>
</tbody>
</table>

Developing the Big Idea:
Students will deepen their understanding of the relationships between numbers and the operations of addition and subtraction through supporting the big idea of the part-part-whole relationships. Students will strengthen their understanding addition and subtraction story problems, and the use of different strategies to work with them.

- continues on next page -
• Note that the portion of the assessment assessing addition and subtraction facts is a “gentle timed” test. Read the note on page 28 of the lesson for more descriptions. Research shows that timed tests create anxiety (Boaler, 2015). The intention of the 3-minute marker on this assessment is intended to support the goal of students coming to an answer using a reasoning strategy within 3 seconds. Do not feel tied to the timed aspect of this assessment. Consider being creative in assessing this skill. The goal of the assessment is for teachers to be able to identify how students are developing in fluency and to notice what strategies they are using. Consider replacing that part of the assessment with the assessment tool, created for APTT fluency assessment. It can be found on the Family Game resources section of the WCSD Curriculum and Instruction website.

Child Watching:
• Teachers should be concerned about those students struggling with one or more of the following: (See Assessment Binder, Bridges Unit Assessment tab, p. 61 for more information).
  • Solving addition and subtraction story problems within 20.
  • Counting on and counting back to solve addition and subtraction combinations within 20.
  • Adding and subtracting with sums and minuends to 10 using strategies that are efficient, accurate and flexible.
  • Working from familiar facts such as doubles, make 10s, and add 10s.
  • Counting to 120
  • Reading and writing numbers to 100
  • Understanding that whole numbers between 10 and 100 are composed of 10s and 1s.

Module 4 - Session 1: Emperor Penguins

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
<th>Instructional NOTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.NBT.1</td>
<td>• The terms inches and feet are used in this lesson. However, the expectation is not about using those standard units (as they are second grade standards). The focus of this work should be the application of using what students have learned about number lines and reinforcing that turning the line vertically to use as a measuring tool does not change the tool or use.</td>
</tr>
<tr>
<td>1.NBT.3</td>
<td>• Using string to observe length is a great way to maintain the linear measurement attribute. It also supports students in constructing the idea of transivity, which is important when direct comparison cannot be used. “In situations when direct comparison is not possible or convenient, they should be able to use indirect comparison and explanations that draw on transivity” (K-6 Progression on Measurement and Data, 2011, p. 8).</td>
</tr>
<tr>
<td>1.NBT.4</td>
<td>• When making comparisons, students might count up from the smallest number.</td>
</tr>
<tr>
<td>1.MD.2</td>
<td>• Consider permanently posting the penguins’ strings next to the labeled measuring strip. This will support students who need a concrete model, allowing them to connect the concrete string to the abstract label on the measuring strip, and support further direct comparisons.</td>
</tr>
<tr>
<td>MP.1</td>
<td>Child Watching:</td>
</tr>
<tr>
<td>MP.3</td>
<td>• Observe for strategies that students use in determining the difference. Are students counting up from the smallest number? Are students counting back from the largest number? Are students counting by 10s off the decade (16, 26, 36)?</td>
</tr>
<tr>
<td>MP.4</td>
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</tbody>
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Securing the Big Idea:
Although students are looking at measurements, the relationships between numbers continues to be developed. Students use the measurements of the penguins and apply the lengths to comparison problem types, supporting the big idea of the part-part-whole relationships.
### Module 4- Session 2: Little Blue Penguins

#### Access Prior Learning:
- 1.NBT.1: Describe and compare measurable attributes of objects such as length or weight.
- 1.NBT.3: Directly compare two objects with a measurable attribute in common to see which object has “more of”/“less of” the attribute and describe the difference.

#### Securing the Big Idea:
Although students are looking at measurements, the relationships between numbers continues to be developed. Students use the measurements of the penguins and apply the lengths to comparison problem types, supporting the big idea of the part-part-whole relationships.

#### Instructional NOTE:
- Read the About This Session in the margin (p. 10).
- Consider posting a student’s height measuring strip (created in Unit 4, Module 4, Session 1) next to the class measuring strip (displaying all penguin string lengths). Use the student’s height measuring strip to compare with penguins’ strings to place in height order. Consider labeling the comparisons on sticky notes, using written words and mathematical notation. This provides students another opportunity to engage with 1.MD.1, ordering three objects by length.

#### Enrichment:
- If time students can explore measuring other objects.

#### Child Watching:
- Observe for students struggling with the use of the vocabulary words. Shorter than, taller than, more than, greater than, less than. Use them interchangeably.

### Module 4- Session 3: Me & the Penguins Again

#### Access Prior Learning:
- 1.NBT.1: Describe and compare measurable attributes of objects such as length or weight.
- 1.NBT.3: Directly compare two objects with a measurable attribute in common to see which object has “more of”/“less of” the attribute and describe the difference.
- Kinder students focused with units of measure such as shoes to determine lengths.
- Unit 4 Module 4 Sessions
- Previous lesson

#### Securing the Big Idea:
Although students are looking at measurements, the relationships between numbers continues to be developed. Students use the measurements of the penguins and apply the lengths to comparison problem types, supporting the big idea of the part-part-whole relationships.

#### Instructional NOTE:
- Students will likely use a counting up or counting down strategy to find the difference between their height and the emperor penguin, as the difference will be minimal and the numbers are close together. The little blue penguin portion of the lesson provides a good opportunity to look for counting strategies. Watch for students who operate on 10s and 1s separately by counting up to a decade number then counting by 10s or by counting by 10s or off the decade.
- Consider using this lesson as an opportunity to provide students the option to solve these questions using whatever tools and strategies they would like. Students might get the cubes out and make lengths for themselves and the penguins, then comparing from there. Watch for students trying to use the cubes against the inch measuring strip. The cubes are not exactly an inch long, so 45 cubes will not equal 45 inches. If students discover this, it is a great opportunity to discuss the importance of equal length units when comparing, and address misconceptions that students might have.
- Student Book page 48 & 49 (problems 1, 2, and 3 only) can be used as an assessment of 1.MD.1.

#### Enrichment:
- See second bullet above

#### Child Watching:
- Observe for these misconceptions: Students not keeping the length of string to be measured straight, or students not lining the beginning of their string up with the beginning of their measuring tool, which will both lead to inaccurate measurements. Students’ answer might off by a number when counting up.

### Module 4- Session 4: Penguin Pairs

#### Supports
- 1.OA
- 1.NBT

#### Developing the Big Idea:
This lesson works on counting by 2s using the stage that has been set with penguins, while exploring these patterns, students are exercising their counting and arithmetic skills and developing a deeper understanding about even numbers. This will strengthen students’ knowledge about the relationships between numbers.

#### Instructional NOTE:
- These next two lessons can provide opportunities for the teacher to pull aside and work with any students who might need more support based on the Unit 6 Assessment.
- Read Math Practices in Action in the margin (p. 21)
- The lesson sets the stage for tomorrow’s lesson.
- This lesson is for exposure only. Determining whether a group of objects has an odd or even number of members is 2nd grade standard.

#### Enrichment:
- See Step 8 (p. 22)
### Session 5: Counting by Twos with Penguin Pairs

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>MP.7</td>
<td>K.CC standards</td>
</tr>
<tr>
<td>MP.8</td>
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#### Developing the Big Idea:
This lesson works on counting by 2s using the stage that has been set with penguins, while exploring these patterns, students are exercising their counting and arithmetic skills and developing a deeper understanding about even numbers. This will strengthen students' knowledge about the relationships between numbers.

#### Instructional NOTE:
- This lesson can provide opportunities for the teacher to pull aside and work with any students who might need more support based on the Unit 6 Assessment.
- This lesson is for exposure only. Determining whether a group of objects has an odd or even number of members is 2nd grade standard.

### References


First Grade Unit 7: One Hundred & Beyond

Big Conceptual Idea

K-5 Progression on Counting and Cardinality and Operations and Algebraic Thinking (pp. 12-17), K-5 Progression on Number and Operations in Base Ten (pp. 6-7), K-6 Progression on Measurement and Data (Measurement Part) (pp. 8-11)

Throughout the unit the Math Practices are introduced and used. Find student friendly posters here.

Links might require you being logged into your Bridges Educator Site. If the link does not work for you, copy and paste the http address into a browser.

<table>
<thead>
<tr>
<th>Mathematical Background</th>
<th>Unit Essential Question:</th>
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</thead>
<tbody>
<tr>
<td>Read Bridges Unit Overview pages (pp. i-vi).</td>
<td>How can quantities be grouped into hundreds, tens, and ones? How can strategies used for addition and subtraction with one digit numbers be applied to adding and subtracting with two-digit numbers?</td>
</tr>
</tbody>
</table>

Instructional note:

The Big Idea for unit 7 continues to build upon the Big Idea of numbers and their relationship to one another. However, place value within the range of 0-120 becomes the focus. First graders work towards deepening their understandings of numbers to 120 as they estimate, count, compare, add and subtract two-digit quantities. Students will work towards the Big Idea that Place value patterns occur when making and adding on groups of ten, fives, and twos. The use of anchors or landmarks of 5 and 10 shows how predictable patterns can help navigate number contexts. Students find that the strategies they have been using with smaller numbers are scalable to these larger numbers, and will begin to see how some strategies are not efficient or are not appropriate when working with larger numbers.

Students might be in different places in their understanding of place value. See the figure on the right (Van de Walle, Karp, Lovin, Bay-Williams, 2014, p. 178). Most students are likely to be in the unitary or Base-ten (groups of 10s approach) stage. In the unitary stage, students will use a count-by-ones approach to determine “How many?” Students might not understand 10 as a unit, but only as ten 1s (Van de Walle et al., 2014, p. 176). When students move into the Base-ten stage (Group B) they begin finding and creating as many 10s as they can. Eventually students move into the Equivalent Stage, where “Understanding of the equivalence of sets B and C indicates that grouping by tens is not just a rule that is followed but also that any grouping by tens, including all or some of the singles, can help tell how many.” (Van de Walle, et al., 2014, p. 177). Note that students move in and out of these based upon the number and the context. Sometimes, depending upon the numbers in the problem or the context of the problem itself, it is more efficient to not put all the groups into 10s. Insight is gained when students are asked what they are thinking and teachers can watch for the different aspects of understanding. Consider checking student understanding with questions such as “How many do you think we will get if we count by ones? You cannot tell children that these counts will all be the same and hope that will make sense to them. It is a relationship they must construct.” (Van de Walle et al., 2014, p. 178). This is why Bridges materials come with Unifix Cubes rather than Base 10 Blocks. “Physical models do not “show” the concept to children. They must mentally construct the ten makes one relationship and impose it on the model.” (Van de Walle, et al., 2014, p. 179). It is important to continuously use Base-ten language along with standard language by saying 3 tens and 5 ones, or 1 hundred 1 ten and 2 ones. “Language plays a key role in making these connections.” (Van de Walle, et al. 2014, p. 179).

As students develop deeper understanding of place value concepts, they will couple this work with continuing the operations and algebraic thinking they’ve been working towards. “There is no need to separate place-value instruction from computation instruction. Children’s efforts with the invention of their own computation strategies will both enhance their understanding of place value and provide a firm foundation for flexible methods of computation.” (Van de Walle, et al., 2014, p. 176).
The idea of supporting computation and place value understanding together is the forefront of 1.NBT.4 (NVACS, 2010). The standard calls for adding two-digit numbers and a one-digit number (67+8) and adding two-digit numbers and a multiple of 10 (67+40) using concrete models and drawings to explain, and relate their strategy to a written method (NVACS, 2010, 1.NBT.4). A common teacher misconception that needs to be addressed is that the mention of a written method does not mean the U.S Traditional Algorithm. The Progression Document states, “Concrete objects, cards, or drawings afford connections with written numerical work and discussions and explanations in terms of tens and ones. In particular, showing a composition of a ten with objects or drawings affords connection of the visual ten with the written numeral 1 that indicates 1 ten” (K-5 Progression on Number and Operations in Base Ten, pp. 6-7).

The documents clarify that these types of non-traditional representations continue within 2nd grade. It identifies that some students towards the end of second grade might make the transition to a more “compact method” such as a standard algorithm. Other students might not be ready until grade 3, but all must transition to a standard algorithm by grade 4 (K-5 Progression on Number and Operations in Base Ten, p. 9). Students have TIME to do this. Do not push it too early and risk creating a child who memorizes the steps but has no understanding of place value. Students who do so might be at a severe disadvantage as they progress through the years in the mathematics trajectory supported by the standards.

Battista addresses this as well, “if algorithms are taught too early in student’s development of reasoning about addition and subtraction, students cannot understand the algorithms conceptually, so they learn them by rote” (Battista, 2012, p. 5). There are different levels of sophistication for student reasoning in addition and subtraction. While child-watching, teachers should be able to identify where students are based on the strategies used (or employed). Based on the work done in our previous units, students should have many strategies to draw from for this work. Teachers should see a progression from students using materials to model the action in a problem to using counting-only strategies, by 1s first, then by place value parts. Students then begin to combine and decompose numbers without counting, by using facts they know (Derived Facts) (Battista, 2012, p. 5).

Many standards are expected to be secured by the end of this unit. Specifically, 1.OA.2 (adding with 3 addends) 1.OA.3 (properties of operations to add and subtract) 1.NBT.1 (Count to 120), 1.NBT.4 (add within 100), 1.NBT.6 (subtract multiples of 10).

The opportunities to connect the content in Unit 7 to the knowledge and skills students have gained through Number Corner are endless. Consider how students have been building the concept of “ten” through the Days in School activities. Each day adding a one, and until a group of ten has been made, followed by identifying equivalent names and equations for the total. Students have been given this daily opportunity to consider multiple equivalent representations of a given number (Group C). Decade Day, and the Classroom Number Line provided other continuous opportunities to create place value understanding.

### Essential Academic Vocabulary

<table>
<thead>
<tr>
<th>New Academic Vocabulary:</th>
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<tbody>
<tr>
<td>Use these words consistently during instruction to begin to develop understanding.</td>
</tr>
<tr>
<td>*a Word Resource Card is available</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Review Vocabulary:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Vocabulary taught prior grades or units)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level</th>
<th>Sublevel</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td>Student does not understand addition and subtraction situations.</td>
</tr>
<tr>
<td>1</td>
<td>1.1</td>
<td>Student counts all.</td>
</tr>
<tr>
<td>1.2</td>
<td>Student counts on or down.</td>
<td></td>
</tr>
<tr>
<td>1.3</td>
<td>Student recalls or derives facts.</td>
<td></td>
</tr>
<tr>
<td>1.4</td>
<td>Student operates on tens and ones separately as ones.</td>
<td></td>
</tr>
</tbody>
</table>

**Additional terminology that students might need support with**: backward, beginning, end, first, forward, paces, reasonable, section, steps strategies
### Standards listed in **bold** indicate a focus of the lesson.

<table>
<thead>
<tr>
<th>NVACS (Content and Practices)</th>
<th>Big Idea</th>
<th>Instructional Clarifications &amp; Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Mathematical Development</strong></td>
<td></td>
</tr>
</tbody>
</table>

#### Module 1 - Session 1: Estimating & Counting Popsicle Sticks

**Access Prior Learning:**
- K.NBT.11-19: compose and decompose numbers from 11-19 into ten ones and some further ones; understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones
- 1.NBT.1: Count to 120, read and write numerals and represent a number of objects with a written numeral

**Developing the Big Idea:**
Students will deepen their understanding of the relationships between numbers as they work towards the Big Idea that place value patterns occur when making and adding groups of 10 through the construction of bundles of 10 popsicle sticks.

**Instructional NOTE:**
- Send home the *Family Letter* found [here](#).
- Read the *Math Practices in Action* in the margin (p. 6).
- It is important for students to engage in the process of constructing these bundles of ten. This model of popsicle sticks supports the need for proportionality. “That is, a model for ten is physically ten times larger than the model for a one.” (Van de Walle, et al., 2014, p. 179).
- When you are counting you emphasize the base-ten language (1 hundred, 3 tens, 5 ones.)
- Students might make a connection between patterns from work with single digits, such as 2+2= 4 is similar to 20+20= 40. Capitalize on this opportunity throughout the unit.
- Graham Fletcher Resources such as his 3-Act Tasks could provide inspiration. See the Whopper Jar video. Consider having students watch as the teacher grabs a handful at a time of popsicle sticks and place them in the jar, similar to the bags of whoppers. Before collecting estimates from students, help them gather evidence to make an estimate. Create a T-chart with one side for “Noticings” and the other labeled “Wonderings”. Students may say “I noticed it was 5 handfuls of sticks.” A wondering might be, “How many sticks fit in a handful?” These will help them make an estimate based on evidence, in this way estimation can be chosen as a tool strategically (Math Practice 6).
- Consider giving each group of children their own jar of sticks and observe them counting the sticks. Watch for how they count. Are they grouping? Are they counting by 1? Then have students share their strategies by strategically selecting students in order.

**Enrichment:**
- Have students write the total in expanded notation. 100+ 30+5=135
- Students explore how groups different groups of students counted the sticks, and consider what pros and cons there are for each strategy. What strategy is efficient? What strategy helps if you lose track?

**Child Watching:**
- Observe for students referring to the hundreds or the groups of tens as “5” or “3”. Respond with, “5 what?” and encourage them to always state “5 hundreds.”
- Observe for students counting by 1s.
- Observe for students making groups of ten.
- Observe for organization techniques.

#### Module 1 - Session 2: Two Turns to Build, Day 1

**Access Prior Learning:**
- K.NBT.11-19: compose and decompose numbers from 11-19 into ten ones and some further ones; understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones
- 1.NBT.1: Count to 120, read and write numerals and represent a number of objects with a written numeral

**Developing the Big Idea:**
Students will deepen their understanding of the relationships between numbers as they work towards the Big Idea that place value patterns occur when making and adding groups of 10 through the construction of bundles of 10 popsicle sticks.

**Instructional NOTE:**
- See the digital display tools for this lesson (copy and paste link if needed). [https://bridges.mathlearningcenter.org/digital-materials/session-2-two-turns-build-day-1](https://bridges.mathlearningcenter.org/digital-materials/session-2-two-turns-build-day-1)

**Enrichment:** Encourage the use of base-ten language.

**Child Watching:**
- Observe for students who might not trust that there are 10 sticks in a bundle (conservation of number). Let students take them apart and count as often as needed.

#### Module 1 - Session 3: Two Turns to Build, Day 2

**Access Prior Learning:**
- K.NBT.11-19: compose and decompose numbers from 11-19 into ten ones and some further ones;
| **1.NBT.2** | Understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.  
| **1.NBT.3** | Count to 120, read and write numerals and represent a number of objects with a written numeral.  
| **1.NBT.4** | Developing the Big Idea:  
Students will deepen their understanding of the relationships between numbers as they work towards the Big Idea that place value patterns occur when making and adding groups of 10 through the construction of bundles of 10 popsicle sticks.  

### Module 1 - Session 4: Introducing Work Place 7A Two Turns to Build

#### Access Prior Learning:
- K.NBT.11-19: compose and decompose numbers from 11-19 into ten ones and some further ones; understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.  
- 1.NBT.1: Count to 120, read and write numerals and represent a number of objects with a written numeral.  

#### Instructional NOTE:
- See the Work Place Sentence Frames for Unit 7 [here](https://bridges.mathlearningcenter.org/implementation/blog/hansel-gretel%E2%80%99s-path)  
- See the online digital tools for the Work Place [here](https://bridges.mathlearningcenter.org/digital-materials/work-place-7a-two-turns-to-build)  
- Consider collecting a grade on this Work Place. Use the grading rubric 7A attached to the Suggestions for Reporting Progress documents. Note: Allow several days of exposure to the Work Place before collecting a grade.  

#### Child Watching:
- Observe for students struggling counting backwards by 10s.  
- Observe for students who are struggling with understanding that a bundle makes up ten 1s. Allow these students to deconstruct and construct bundles again.  
- Observe for students struggling to count by 10s, then switching to counting by 1s. Adding in a symbolic sound, or motion, such as a clap can help.  

### Module 1 - Session 5: Introducing Work Place 7B Race to Zero

#### Access Prior Learning:
- K.NBT.11-19: compose and decompose numbers from 11-19 into ten ones and some further ones; understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.  
- 1.NBT.1: Count to 120, read and write numerals and represent a number of objects with a written numeral.  

#### Instructional NOTE:
- See the online digital tools for the Work Place [here](https://bridges.mathlearningcenter.org/digital-materials/work-place-7b-race-zero)  
- Consider collecting a grade on this Work Place. Use the grading rubric 7B attached to the Suggestions for Reporting Progress documents. Note: Allow several days of exposure to the Work Place before collecting a grade.  

#### Child Watching:
- Observe for students struggling counting backwards by 10s.  
- Observe for students who are struggling with understanding that a bundle makes up ten 1s. Allow these students to deconstruct and construct bundles again.  
- Observe for students struggling to count by 10s, then switching to counting by 1s. Adding in a symbolic sound, or motion, such as a clap can help.  
- Observe for students struggling counting backwards by 10s.  

### Module 2 - Session 1: Introducing Hansel & Gretel's Path

#### Access Prior Learning:
- K.NBT.11-19: compose and decompose numbers from 11-19 into ten ones and some further ones; understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.  
- 1.NBT.1: Count to 120, read and write numerals and represent a number of objects with a written numeral.  
- The story of Hansel and Gretel  

#### Instructional NOTE:
- The blog titled Hansel & Gretel's Path on the Educator Site shares great ideas for supporting your students. Find it on the Implementation tab then search for the title in the search bar, copy and paste the link into your browser. [https://bridges.mathlearningcenter.org/implementation/blog/hansel-gretel%E2%80%99s-path](https://bridges.mathlearningcenter.org/implementation/blog/hansel-gretel%E2%80%99s-path)  
- This Unit provides great opportunity for students to engage in Math Practice 3, by constructing viable arguments and critiquing the reasoning of others. If teachers have been using Accountable Talk throughout the year, this will come naturally for students with that structure in place.  

- continues on next page-
<table>
<thead>
<tr>
<th><strong>Module 2- Session 2: Counting Pebbles Along the Path</strong></th>
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</thead>
<tbody>
<tr>
<td><strong>Developing the Big Idea:</strong></td>
<td>Students will deepen their understanding of the relationships between numbers as they work towards the Big Idea that place value patterns occur when counting forwards and backwards by 10s, 5s, and 1s.</td>
</tr>
<tr>
<td><strong>Enrichment:</strong></td>
<td>See Step 11 (p. 6)</td>
</tr>
<tr>
<td><strong>Child Watching:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Observe for students working together counting 10 paces and laying a different colored cube down with their partner.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Module 2- Session 3: A Fork in the Path</strong></th>
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</thead>
<tbody>
<tr>
<td><strong>Developing the Big Idea:</strong></td>
<td>Students will deepen their understanding of the relationships between numbers as they work towards the Big Idea that place value patterns occur when counting forwards and backwards by 10s, 5s, and 1s. This lesson uses this knowledge to apply towards addition and subtraction of 2 digits and a single digit.</td>
</tr>
<tr>
<td><strong>Instructional NOTE:</strong></td>
<td>Continuously reinforce strategies that involve adding and subtracting rather than counting on or counting backward.</td>
</tr>
<tr>
<td><strong>Enrichment:</strong></td>
<td>See Steps 2, 3, 4 &amp; 6 (p. 10-11)</td>
</tr>
<tr>
<td><strong>Child Watching:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Observe for students who are using addition and subtraction strategies that are not counting on or back. Choose a few to share so that others who are using counting on or counting back can be challenged to try a different strategy.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Module 2- Session 4: Observations Along the Path</strong></th>
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</thead>
<tbody>
<tr>
<td><strong>Developing the Big Idea:</strong></td>
<td>Students will deepen their understanding of the relationships between numbers as they work towards the Big Idea that place value patterns occur when counting forwards and backwards by 10s, 5s, and 1s. This lesson uses this knowledge to apply towards addition and subtraction of 2 digits and a single digit.</td>
</tr>
<tr>
<td><strong>Instructional NOTE:</strong></td>
<td>Encourage students to work with the boxes out of sequence to reinforce the skills of skip-counting. See note in Step 4.</td>
</tr>
<tr>
<td><strong>Enrichment:</strong></td>
<td>See Step 5 (p. 19)</td>
</tr>
<tr>
<td><strong>Child Watching:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Observe for students struggling with skip-counting by 5s or 10s.</td>
</tr>
</tbody>
</table>
## Module 2- Session 5: Problems Along the Path

**Access Prior Learning:**
- 1.NBT.1: Count to 120, read and write numerals and represent a number of objects with a written numeral
- The story of Hansel and Gretel

**Developing the Big Idea:**
Students will deepen their understanding of the relationships between numbers with the Big Idea that place value patterns occur when counting forwards and backwards by 10s, 5s, and 1s. This lesson uses this knowledge to apply towards addition and subtraction of 2 digits and a single digit.

**Instructional NOTE:**
- Read the *Math Practices in Action* in the margin (p. 23)
- In the assessment, students might be confused with symbolizing the breadcrumb, pinecone, and pebble with the P, PC and B. Consider encouraging them to draw a picture and/or write the numbers associated with the symbol.
- The *Assessment Binder* under the *Bridges Unit Assessment* tab provides the scoring guide for this checkpoint (p. 76). It can also be downloaded from the site and scores entered digitally to create a color coded spreadsheet.

**Enrichment:**
- Consider using sidewalk chalk outside to recreate the pathways beginning from various numbers
- Play a variation of Duck, Duck, Goose using the breadcrumb, pebble, pinecone pattern
- See Step 6 (p. 23)

**Child Watching:**
- Use the scoring guide to inform your instruction and consider pulling a small group of students who need support.

---

## Module 3- Session 1: Ten Steps on the Path

**Access Prior Learning:**
- 1.OA.1: Represent addition and subtraction with objects, fingers, mental images, drawings, sounds, acting out situations, expressions or equations
- The previous sessions

**Developing the Big Idea:**
Students will deepen their understanding of the relationships between numbers and the operations of addition and subtraction through supporting the big idea of Part/Part/Whole relationships. Students will also use their growing understanding of place value patterns and the property of commutativity to solve these addition problems.

**Instructional NOTE:**
- Read the *About This Session* in the margin (p. 4)
- Read the *Math Practices in Action* in the margin (p. 5)

**Enrichment:**
- See Step 6 (p. 5). Consider having students write an equation to match their thinking.

**Child Watching:**
- See the Support note in step 7 (p. 5)

---

## Module 3- Session 2: Twenty Steps on the Path

**Access Prior Learning:**
- 1.OA.1: Represent addition and subtraction with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions or equations
- The previous sessions

**Developing the Big Idea:**
Students will deepen their understanding of the relationships between numbers and the operations of addition and subtraction through supporting the Big Idea of the Part/Part/Whole relationships. Students will also use their growing understanding of place value patterns and the property of commutativity to solve these addition problems.

**Instructional NOTE:**
- Read the *About This Session* in the margin (p. 8)

**Enrichment:**
- Provide restrictions on how many of certain objects students can use. See the *About This Session* note (p. 8).

**Child Watching:**
- Observe for student strategies. Are students using any systematic way to determine combinations? When students are writing an equation, can they identify ways to add multiple numbers in an equation by making friendly numbers?

---

## Module 3- Session 3: The Path Game, Part 1

**Access Prior Learning:**
- 1.OA.1: Represent addition and subtraction with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions or equations
- K.OA.1: Represent addition and subtraction with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions or equations
- K.NBT.1:1-19: compose and decompose numbers from 11-19 into ten ones and one, two, three, four, five, six, seven, eight, or nine ones

**Instructional NOTE:**
- Although it might feel like it will take too long for students to create their own number line. There is inherent value for students to do so as it requires them to construct understandings of the tool’s properties. It also supports Self-Management and Constructing Knowledge concepts.
- Capitalize on the opportunity for students to share their written methods for adding and subtracting these numbers as they work on 1.NBT.4. Refrain from any focus on the U.S Traditional algorithm. Encourage students to use sense making strategies and document those strategies in a representational form. Model students’ thinking on the board if need be, using their words to express in written form what they’ve done.

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**-continues on next page-**
### Module 3- Session 4: The Path Game, Part 2

**Access Prior Learning:**
- 1.NBT.1: Count to 120, read and write numerals and represent a number of objects with a written numeral
- 1.NBT.6: The previous sessions

**Securing the Big Idea:**
Students will deepen their understanding of the relationships between numbers and the operations of addition and subtraction through supporting the Big Idea of the Part/Part/Whole relationships. Students will also use their growing understanding of place value patterns and the property of commutativity to solve these addition problems.

**Instructional NOTE:**
- Capitalize on the opportunity for students to share their written methods for adding and subtracting these numbers as they work on 1.NBT.4. Refrain from any focus on the U.S Traditional algorithm. Encourage students to use sense making strategies and document those strategies in a representational form. Model students’ thinking on the board if need be, using their words to express in written form what they’ve done.
- This is an opportunity to bring attention to the open number line (introduced in Unit 4) again to allow students to expand their reasoning, which will support the transition to 2nd grade.

**Enrichment:** See Step 8 (p. 20)

**Child Watching:**
- Observe for student strategies. Invite students to share if there are interesting strategies for more challenging combinations such as 17+5.
- Observe for how students express their thinking in written form. Begin collecting ways to show thinking on a big poster in the room.

---

### Module 3- Session 5: Unit 7 Assessment

**Access Prior Learning:**
- K.OA.1: Represent addition and subtraction with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions or equations
- K.NBT.11-19: compose and decompose numbers from 11-19 into ten ones and some further ones; understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones
- 1.NBT.1: Count to 120, read and write numerals and represent a number of objects with a written numeral
- The previous sessions

**Securing the Big Idea:**
Students will deepen their understanding of the relationships between numbers and the operations of addition and subtraction through supporting the Big Idea of the Part/Part/Whole relationships. Students will also use their growing understanding of place value patterns and the property of commutativity to solve these addition problems.

**Instructional NOTE:**
- The Assessment Binder under the Bridges Unit Assessment tab provides the scoring guide for the for Unit 7 Assessment (p. 80). It can also be downloaded from the site and scores entered digitally to create a color coded spreadsheet. See the right hand side where it says, “assessment tools.”
- Standards 1.OA.2, 1.OA.3, 1.NBT.1, 1.NBT.4, 1.NBT.6 are targeted for security according to the Grade 1 Assessment Map (pp. 13-15) in the Assessment Binder under the Assessment Overview tab.
- The assessment provides another opportunity to assess 1.OA.1, which was targeted for security last unit.
- In the assessment, students might be confused with symbolizing the breadcrumb, pinecone, and pebble with the P, PC and B. Consider encouraging them to draw a picture and/or write the numbers associated with the symbol.

**Enrichment:** See Step 11 (p. 24)

**Child Watching:**
- At this point teachers should be concerned about those students struggling with one or more of the following. (See Assessment Binder, Bridges Unit Assessment tab, p. 61 for more information).
  - Solving addition and subtraction story problems within 20.
  - Counting on and counting back to solve addition and subtraction combinations within 20.
  - Adding and subtracting with sums and minuends to 10 using strategies that are efficient, accurate and flexible.
  - Working from familiar facts such as doubles, make 10s, and add tens.
  - Counting to 120

-continues on next page-
### Module 4- Session 1: How Many Pennies in the Jar?

**Supports**
- 1.NBT.1
- 1.NBT.2
- 1.NBT.4
- 1.MD
- MP.7
- MP.8

**Access Prior Learning:**
- K.MD.3 - Classify objects and count the number of objects in each category
- Coins have been utilized during Number Corner throughout the year

**Securing the Big Idea:**
Students will deepen their understanding of the relationships between numbers and the operations of addition and subtraction through supporting the Big Idea of the Part/Part/Whole relationships. Students will strengthen their understanding of place value concepts through the use of money as a model, 10 parts to one whole.

**Instructional NOTE:**
- See Module 1 Session 1 notes for more ideas on this lesson.
- Teaching coins and adding the values is a 2nd grade standard, although students have had exposure to them as mathematical models in both kindergarten and through Number Corner this year. The intent of these lessons is to continue to use coins as a model for place value.
- Money is an example of a nonproportional model for place value in which the ten is not physically ten times larger than the one. Nonproportional representations are used “once children have a conceptual understanding of the numeration system and need additional reinforcement” (Van de Walle, et al., 2014, p. 181).

**Enrichment:** See Extension in the margin (p. 6)

**Child Watching:**
- Observe for students who struggle with the nonproportional representation of place value, reinforce this with using 1 cube per penny and 100 cubes per dollar to help them see the connection.

### Module 4- Session 2: Two Turns to Win

**Supports**
- 1.NBT.1
- 1.NBT.2
- 1.NBT.3
- 1.NBT.4
- 1.MD
- MP.2
- MP.7

**Access Prior Learning:**
- K.MD.3 - Classify objects and count the number of objects in each category
- Coins have been utilized during Number Corner throughout the year.
- The previous lesson

**Developing the Big Idea:**
Students will deepen their understanding of the relationships between numbers and the operations of addition and subtraction through supporting the Big Idea of the Part/Part/Whole relationships. Students will strengthen their understanding of place value concepts through the use of money as a model, 10 parts to one whole.

**Instructional NOTE:**
- Teaching coins and adding the values is a 2nd grade standard. Although students have had exposure to coins as mathematical tools in both kindergarten and through Number Corner this year, the intent of these lessons is to continue to use coins as a tool for understanding place value.
- Money is an example of a nonproportional model for place value in which the 10 is not physically ten times larger than the 1. Nonproportional representations are used “once children have a conceptual understanding of the numeration system and need additional reinforcement” (Van de Walle, et al., 2014, p. 181).
- Again, remember the goal is to reinforce adding numbers within 20, as well as securing understanding of place value. The goal should not be focused on counting money. If students are struggling, have cubes readily accessible to use.
- Read the Math Practices in Action in the margin (p. 10)

**Enrichment:**

**Child Watching:**
- Observe for students who struggle with the nonproportional representation of place value, reinforce this with using 1 cube per penny, 10 cubes per dime, 100 cubes per dollar to help them see the connection.

### Module 4- Session 3: Pull, Count & Compare

**Supports**
- 1.NBT.3
- 1.NBT.4
- 1.NBT.5
- 1.MD
- MP.4
- MP.8

**Access Prior Learning:**
- K.MD.2 - Directly compare two objects with a measurable attribute in common to see which object has “more of”/“less of” the attribute and describe the difference
- K.MD.3 - Classify objects and count the number of objects in each category
- Coins have been utilized during Number Corner throughout the year
- The previous sessions

**Developing the Big Idea:**
Students will deepen their understanding of the relationships between numbers and the operations of addition and subtraction through supporting the Big Idea of the Part/Part/Whole relationships. They will strengthen their understanding of place value concepts by comparing the values of sets of coins using the greater than, lesser than and equal to symbols.

**Instructional NOTE:**
- Teaching coins and adding the values is a 2nd grade standard. Although students have had exposure to coins as mathematical tools in both kindergarten and through Number Corner this year, the intent of these lessons is to continue to use coins as a tool for understanding place value.
- Money is an example of a nonproportional model for place value in which the 10 is not physically ten times larger than the 1. Nonproportional representations are used “once children have a conceptual understanding of the numeration system and need additional reinforcement” (Van de Walle, et al., 2014, p. 181).
- Again, remember the goal is to reinforce adding numbers within 20, as well as securing understanding of place value. The goal should not be focused on counting money. If students are struggling, have cubes readily accessible to use.

**Enrichment:**

**Child Watching:**
- Use the suggestions in Step 13 (p. 16) to guide child watching.
## Module 4- Session 4: Coins on Board, Day 1

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
<th>Instructional NOTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.NBT.2</strong></td>
<td>- K.CC standards</td>
</tr>
<tr>
<td><strong>1.NBT.3</strong></td>
<td>- 1.NBT.1- Count to 120, read and write numerals and represent a number of objects with a written numeral.</td>
</tr>
<tr>
<td><strong>1.NBT.4</strong></td>
<td>- Activate knowledge of any use of coordinate grids from other content areas if any</td>
</tr>
<tr>
<td><strong>Supports 1.MD</strong></td>
<td>- Previous sessions</td>
</tr>
<tr>
<td><strong>MP.1</strong></td>
<td>- These next few lessons can provide opportunities for the teacher to pull aside and work with any students who might need more support based on the Unit 7 Assessment.</td>
</tr>
<tr>
<td><strong>MP.3</strong></td>
<td>- The focus of this lesson is not on coordinate grids, therefore, if students struggle with this, provide as much support as needed. The purpose is to provide other engaging opportunities for students to work with adding strings of numbers by 10s, 5s and 1s.</td>
</tr>
</tbody>
</table>

### Securing the Big Idea:
Students will deepen their understanding of the relationships between numbers and the operations of addition and subtraction through supporting the Big Idea of the Part/Part/Whole relationships. Students will strengthen their understanding of place value concepts through the use of money as a model, 10 parts to one whole.

### Instructional NOTE:
- These next few lessons can provide opportunities for the teacher to pull aside and work with any students who might need more support based on the Unit 7 Assessment.
- The focus of this lesson is not on coordinate grids, therefore, if students struggle with this, provide as much support as needed. The purpose is to provide other engaging opportunities for students to work with adding strings of numbers by 10s, 5s and 1s.

### Enrichment:
- See Step 15 (p. 20).

### Child Watching:
- Observe for students struggling to use the coordinate grid and partner them with a peer for support.
- Observe for students using the property of commutativity and adding numbers in orders that make sense, for example adding all the 10s first, then 5s, followed by 1s. Select students to share.
- Observe for student’s documentation of their addition in a written method. Share student strategies, and add to class posters for idea of representing thinking.

## Module 4- Session 5: Coins on Board, Day 2

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
<th>Instructional NOTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.NBT.2</strong></td>
<td>- K.CC standards</td>
</tr>
<tr>
<td><strong>1.NBT.3</strong></td>
<td>- 1.NBT.1- Count to 120, read and write numerals and represent a number of objects with a written numeral.</td>
</tr>
<tr>
<td><strong>1.NBT.4</strong></td>
<td>- Activate knowledge of any use of coordinate grids from other content areas if any.</td>
</tr>
<tr>
<td><strong>Supports 1.MD</strong></td>
<td>- Previous sessions</td>
</tr>
<tr>
<td><strong>MP.7</strong></td>
<td>- This lesson can provide opportunities for the teacher to pull aside and work with any students who might need more support based on the Unit 7 Assessment.</td>
</tr>
<tr>
<td><strong>MP.8</strong></td>
<td>- The focus of this lesson is not on coordinate grids, therefore, if students struggle with this, provide as much support as needed. The purpose is to provide other engaging opportunities for students to work with adding strings of numbers by 10s, 5s, and 1s.</td>
</tr>
</tbody>
</table>

### Securing the Big Idea:
Students will deepen their understanding of the relationships between numbers and the operations of addition and subtraction through supporting the Big Idea of the Part/Part/Whole relationships. Students will strengthen their understanding of place value concepts through the use of money as a model, 10 parts to one whole and by comparing the values of sets of coins using the greater than, lesser than and equal to symbols.

### Instructional NOTE:
- This lesson can provide opportunities for the teacher to pull aside and work with any students who might need more support based on the Unit 7 Assessment.
- The focus of this lesson is not on coordinate grids, therefore, if students struggle with this, provide as much support as needed. The purpose is to provide other engaging opportunities for students to work with adding strings of numbers by 10s, 5s, and 1s.

### Enrichment:
- Observe for students struggling to use the coordinate grid and partner them with a peer for support.
- Observe for students using the property of commutativity and adding numbers in orders that make sense, for example adding all the 10s first, then 5s, followed by 1s. Select students to share.
- Observe for students’ documentation of their addition in a written method. Share student strategies, and add to class posters for idea of representing thinking.

## References


First Grade Unit 8: Changes, Changes

Big Conceptual Idea: K-5 Progression on Counting and Cardinality and Operations and Algebraic Thinking (pp. 12-17), K-5 Progression on Number and Operations in Base Ten (pp. 6-7), K-6 Progression on Measurement and Data (Measurement Part) (pp. 8-11).

Throughout the unit the Math Practices are introduced and used. Find student friendly posters here.

Links might require you being logged into your Bridges Educator Site. If the link does not work for you, copy and paste the http:// address into a browser.

| Mathematical Background: Read Bridges Unit Overview pages (pp. i-xii). | Unit Essential Question: How can time and objects be measured and compared? |

**Instructional note:**

The Big Idea for Unit 8 brings about the idea that our daily lives and things in it such as time and objects can be measured. The idea is that **distance is measured as a series of iterated units.** Different measurement units can be compared and so can quantities, thus continuing the idea we've worked on throughout the year, **numbers and their relationships to one another.** The unit brings to life Problem Based Learning, and Teaching Through Problem Solving. "Doing mathematics in classrooms should closely model the act of doing mathematics in the real world" (Van de Walle, Karp, Bay-Williams, 2013).

Linear measurement is one of the 4 critical content areas as identified in the standards (NVACS, 2010, p. 13). The progression documents state, “The general reasoning processes of seriation, conservation (of length and number) and classification predict success in early childhood as well as later schooling” (K-6 Progression on Measurement and Data (Measurement Part), p. 8).

Research has found (through longitudinal studies) student success in early childhood with number and measurement as indicators for academic success in mathematics and reading later in life (Duncan et al., 2007; Claessens and Duncan, 2009). Therefore, providing ample opportunities for students to experience and deepen these mathematical ideas will be incredibly beneficial. “Data from international studies consistently indicate that children in the United States are weaker in the area of measurement than any other topic” (Van de Walle, Karp, Lovin, Bay-Williams, 2014, p. 269). Measurement is prevalent in our daily lives, as well as embedded in many other strands of mathematics, science, social studies, art and music.

Unit 8 provides great opportunities for students to solidify their understanding of linear measurement, using unifix cubes as a tool. While each cube is a standard (the same length) measure, students are not using measuring tools such as rulers at this time (this is a second grade standard). To attend to the mathematics intended, focus on the idea of comparing lengths. Transivity should be explicitly discussed (the idea, not the actual word). For example, if the table is longer than the rug, and the rug is longer than the book, then logically the table is longer than the book too (K-6 Progression on Measurement and Data (Measurement Part), p. 8). The practice of comparing lengths connects the act of computing the difference between quantities, thus continuing the work of subtraction with 2 digit and 1 digit numbers.

The Big Idea that the size of the iterated unit matters (an inverse relationship between unit size and unit count) when measuring the length of an object, is difficult for students to grapple with. For example, understanding that using unifix cubes will result in a larger quantity for the length of a table, than using unsharpened pencils which will result in a smaller number. Students need to experience and explore this idea. The K-6 Progression on Measurement and Data (Measurement Part), states that some students might be tempted to try to measure using similar; yet not exactly the same items, such as large and smaller paper clips (p. 9). Children might not notice or understand that when using nonstandard units the unit must be the same size. Thus, if we decide to use a child's length to measure the room we must stay with that same child and iterate that child's length over and over, instead of using multiple children and having them lay across the room. A worthy discussion is that, when measuring, the unit needs to stay the same. A literature connection to support this is “How Big is a Foot” by Rolf Myller or Super Fab Lab! Nonstandard Measurement - Sid The Science Kid-The Jim Henson Company.

Another idea to explore is seriation, ordering a set of objects by length. At first, students might struggle with ordering a large set (more than 6 objects) if the lengths vary by slight differences. Scaffold this by using smaller sets, and/or having items with larger differences, and slowly build to more items in a set and smaller differences (K-6 Progression on Measurement and Data (Measurement Part), p. 8).
Many standards are expected to be secure by the end of this unit. Specifically, 1.NBT.3 (comparison of numbers) 1.NBT.5 (Mentally find 10 more or less) 1.MD.1 (order three objects by length), 1.MD.2 (length of object), 1.MD.4 (Data) (NVACS, 2010).

### Essential Academic Vocabulary

<table>
<thead>
<tr>
<th>New Academic Vocabulary:</th>
<th>Review Vocabulary:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use these words consistently during instruction to begin to develop understanding.</td>
<td></td>
</tr>
<tr>
<td><em>a Word Resource Card is available</em></td>
<td></td>
</tr>
<tr>
<td><strong>Hour (hr.)</strong>*</td>
<td><strong>Add</strong>*</td>
</tr>
<tr>
<td><strong>Minute (min.)</strong>*</td>
<td><strong>Less than</strong>*</td>
</tr>
<tr>
<td><strong>Second (sec.)</strong>*</td>
<td><strong>Clock</strong></td>
</tr>
<tr>
<td><strong>Compare</strong>*</td>
<td><strong>Long/longer/longest</strong>*</td>
</tr>
<tr>
<td><strong>Count</strong>*</td>
<td><strong>Lowest</strong></td>
</tr>
<tr>
<td><strong>Cube</strong>*</td>
<td><strong>Measure</strong></td>
</tr>
<tr>
<td><strong>Distance</strong></td>
<td><strong>More than</strong></td>
</tr>
<tr>
<td><strong>Difference</strong>*</td>
<td><strong>Number line</strong>*</td>
</tr>
<tr>
<td><strong>Distance</strong></td>
<td><strong>Oes</strong>*</td>
</tr>
<tr>
<td><strong>Double</strong></td>
<td><strong>Parallel</strong></td>
</tr>
<tr>
<td><strong>Edge</strong>*</td>
<td><strong>Pattern</strong>*</td>
</tr>
<tr>
<td><strong>Equal</strong>*</td>
<td><strong>Rectangle</strong>*</td>
</tr>
<tr>
<td><strong>Fives</strong></td>
<td><strong>Short/shorter/shortest</strong>*</td>
</tr>
<tr>
<td><strong>Graph</strong></td>
<td><strong>Subtract</strong>*</td>
</tr>
<tr>
<td><strong>Greater than</strong>*</td>
<td><strong>Subtraction</strong></td>
</tr>
<tr>
<td><strong>Group/groups</strong></td>
<td><strong>Sum or Total</strong>*</td>
</tr>
<tr>
<td><strong>Half</strong>*</td>
<td><strong>T-Chart</strong></td>
</tr>
<tr>
<td><strong>Hundreds</strong>*</td>
<td><strong>Tally marks</strong></td>
</tr>
<tr>
<td><strong>Length</strong>*</td>
<td><strong>Tens</strong>*</td>
</tr>
<tr>
<td><strong>Weight</strong>*</td>
<td><strong>Weight</strong>*</td>
</tr>
</tbody>
</table>

**Additional terminology that students might need support with:** change, circumference, clock face, day, fast, fold, left side, location, minus, minute hand, order, plus, range, right side, rule, second hand, slow, sudden, time, strategies, year

Standards listed in **bold** indicate a focus of the lesson.

### NVACS

<table>
<thead>
<tr>
<th>NVACS (Content and Practices)</th>
<th>Big Idea</th>
<th>Instructional Clarifications &amp; Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module 1 - Session 1: Time Tests</strong></td>
<td><strong>1.NBT.1</strong></td>
<td><strong>Instructional NOTE:</strong></td>
</tr>
<tr>
<td><strong>MP.4</strong></td>
<td><strong>Kinder standards do not call for any work to be done with time. In first grade Number Corner, students will have been exposed to time, analogue/digital clocks, and telling time to the half hour</strong></td>
<td><strong>Send home the <em>Family Letter</em> found <a href="#">here</a>.</strong></td>
</tr>
<tr>
<td><strong>MP.7</strong></td>
<td><strong>Securing the Big Idea:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Students will deepen their understanding of the relationships between numbers through work with measurement units. Time can be measured and units of time can be compared.</strong></td>
<td><strong>Measuring time relies on students engaging in experiences with the measurement. “Time is different from most other attributes that are commonly measured in school because it cannot be seen or felt and because it is more difficult for children to comprehend units of time or how those units are matched against a given time period or duration. As with other attributes, for children to adequately understand the attribute of time, they should make comparisons of events that have different durations.” (Van de Walle, et al., 2014, pp. 286-287).</strong></td>
</tr>
<tr>
<td></td>
<td><strong>The activity of building with math materials is intended to engage students in a familiar activity while focusing on the passage of time. It could be any activity that doesn’t require a huge cognitive demand. Remember the point is for students to be thinking about the passage of time, not to be focused on the actual activity of choice.</strong></td>
<td><strong>Enrichment:</strong> See the Extensions activities in the margin (p. 7).**</td>
</tr>
<tr>
<td></td>
<td><strong>Child Watching:</strong></td>
<td><strong>Observe for students using appropriate vocabulary.</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Observe for students making connections to their daily lives.</strong></td>
</tr>
</tbody>
</table>

### Module 1 - Session 2: A Second, A Minute, or An Hour

<table>
<thead>
<tr>
<th><strong>1.NBT.1</strong></th>
<th><strong>1.MD.3</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access Prior Learning:</strong></td>
<td><strong>Instructional NOTE:</strong></td>
</tr>
<tr>
<td><strong>Kinder standards do not call for any work to be done with time. In first grade Number Corner, students will have been exposed to time, analogue/digital clocks, and telling time to the half hour</strong></td>
<td><strong>Enrichment:</strong> There is a blog titled <em>Finish Strong &amp; Carry On</em> suggested on the Educator Site with ideas for Unit 8. Find it on the Implementation tab then search for the title in the search bar, or copy and paste the link into your browser. <a href="https://bridges.mathlearningcenter.org/implementation/blog/finish-strong-carry">https://bridges.mathlearningcenter.org/implementation/blog/finish-strong-carry</a>**</td>
</tr>
<tr>
<td><strong>MP.4</strong></td>
<td><strong>MP.5</strong></td>
</tr>
<tr>
<td><strong>MP.7</strong></td>
<td><strong>-continues on next page-</strong></td>
</tr>
</tbody>
</table>
### Securing the Big Idea:
Students will deepen their understanding of the relationships between numbers through work with measurement units. Time can be measured and units of time can be compared.

### Child Watching:
- Observe for students using appropriate vocabulary.
- Observe for students making connections to their daily lives.

#### Module 1- Session 3: How Long Does it Take?

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.MD.4, MP.4, MP.7</td>
</tr>
<tr>
<td>Kinder standards do not call for any work to be done with time. In first grade Number Corner, students will have been exposed to time, analogue/digital clocks, and telling time to the half hour</td>
</tr>
</tbody>
</table>

**Instructional NOTE:**
- Measuring time relies on students engaging in experiences with measurement. “Time is different from most other attributes that are commonly measured in school because it cannot be seen or felt and because it is more difficult for children to comprehend units of time or how those units are matched against a given time period or duration. As with other attributes, for children to adequately understand the attribute of time, they should make comparisons of events that have different durations.” (Van de Walle, et al., 2014, pp. 286-287).

**Enrichment:** Consider having students ask and answer questions about their graph. How many more activities are in the second column compared to the minute column?

<table>
<thead>
<tr>
<th>Child Watching:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observe for students using appropriate vocabulary.</td>
</tr>
<tr>
<td>Observe for students making connections to their daily lives.</td>
</tr>
</tbody>
</table>

#### Module 1- Session 4: An Hour or Bust!

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.NBT.1, 1.NBT.3, 1.NBT.4, 1.G.3, MP.2, MP.3</td>
</tr>
<tr>
<td>Kinder standards do not call for any work to be done with time. In first grade Number Corner, students will have been exposed to time, analogue and digital clocks, and telling time to the half hour</td>
</tr>
</tbody>
</table>

**Instructional NOTE:**
- See the Work Place sentence frames for Unit 8 here.
- See the online digital tools for the Work Place, copy and paste link into your browser https://bridges.mathlearningcenter.org/digital-materials/session-4-hour-or-bust
- Utilize this opportunity to continue the work of adding two-digit numbers by focusing on the questions suggested such as “I got 20+10+15+15. Can you figure out my total?”

**Enrichment:** See the Game Variations on Work Place Instructions (p. T3)

<table>
<thead>
<tr>
<th>Child Watching:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observe for students who are using strategies to mentally add the numbers.</td>
</tr>
<tr>
<td>Observe for students using the commutative property, and changing the order of the numbers to create easier to add combinations.</td>
</tr>
</tbody>
</table>

#### Module 1- Session 5: Introducing Work Place 8A An Hour or Bust!

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.OA.8, 1.NBT.1, 1.NBT.3, 1.NBT.4, 1.G.3, MP.2, MP.3</td>
</tr>
<tr>
<td>Kinder standards do not call for any work to be done with time. In first grade Number Corner students will have been exposed to time, analogue and digital clocks and telling time to the half hour.</td>
</tr>
</tbody>
</table>

**Instructional NOTE:**
- See the online digital tools for the Work Place. Copy and paste link into your browser https://bridges.mathlearningcenter.org/digital-materials/session-4-hour-or-bust
- Consider collecting a grade on this Work Place. Use the grading rubric 8A attached to the Suggestions for Reporting Progress documents. Note: Allow several days of exposure to the Work Place before collecting a grade.

**Enrichment:** See the Game Variations on Work Place Instructions (p. T3)

<table>
<thead>
<tr>
<th>Child Watching:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observe for students who are using strategies to mentally add the numbers.</td>
</tr>
<tr>
<td>Observe for students using the commutative property, and changing the order of the numbers to create easier to add combinations.</td>
</tr>
</tbody>
</table>
### Module 2- Session 1: Grandma’s Picnic Basket

<table>
<thead>
<tr>
<th>1.OA.1</th>
<th>1.OA.6</th>
<th>1.NBT.4</th>
<th>1.G.3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access Prior Learning:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.OA.6: Using strategies to add and subtract within 20.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students will have spent time working on knowledge of doubles to develop their reasoning strategies.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Developing the Big Idea:**
Students will deepen their understanding of the relationships between numbers as they work towards developing the Big Idea of algebraic functions. This supports the Big Idea that place value patterns occur, and that quantities can be compared. This continues to develop students’ understanding of numbers and their relationships to one another.

<table>
<thead>
<tr>
<th>MP.2</th>
<th>MP.4</th>
<th>MP.7</th>
</tr>
</thead>
</table>

**Instructional NOTE:**
- Read the Math Practices in Action in the margin (p. 8)
- In the Bridges Overview for this unit you will find the Algebra Connections in This Unit (p. vi). Consider revisiting this as you launch into work with the big idea of algebraic functions.

**Enrichment:**
- Allow students to challenge themselves with a larger number to double, or to make multiple pages for the book.

**Child Watching:**
- Observe for students identifying and making use of the structures and patterns they see on the T-chart.

### Module 2- Session 2: The Change Box, Day 1

<table>
<thead>
<tr>
<th>1.OA.5</th>
<th>1.OA.6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access Prior Learning:</strong></td>
<td></td>
</tr>
<tr>
<td>1.OA.6: Using strategies to add and subtract within 20.</td>
<td></td>
</tr>
<tr>
<td>Students will have spent time working on knowledge of doubles to develop their reasoning strategies.</td>
<td></td>
</tr>
<tr>
<td>Students will also rely on their work adding and subtracting 1 and 2 from a number.</td>
<td></td>
</tr>
</tbody>
</table>

**Developing the Big Idea:**
Students will deepen their understanding of the relationships between numbers as they work towards developing the Big Idea of algebraic functions. This supports the Big Idea that place value patterns occur, and that quantities can be compared. This continues to develop students’ understanding of numbers and their relationships to one another.

<table>
<thead>
<tr>
<th>MP.2</th>
<th>MP.7</th>
<th>MP.8</th>
</tr>
</thead>
</table>

**Instructional NOTE:**
- Continuously reinforce strategies that involve adding and subtracting.
- The Math Practices 7 & 8 both begin with “look for” which implies that “children who are mathematically proficient pay attention to patterns as they do mathematics.” These lessons provide opportunities for students to work on these two math practices. “Children should be engaged in looking for, describing, and extending patterns to help them develop the skills to look for structure and express regularity in all mathematical situations.” (Van de Walle, et al., 2014, p. 243).
- See the blog titled The Ins & Outs of the Change Box on the Educator site for step by step directions and picture support to create your change box. You can search for it under the implementation tab, or copy and paste this link: [https://bridges.mathlearningcenter.org/implementation/blog/ins-outs-change-box](https://bridges.mathlearningcenter.org/implementation/blog/ins-outs-change-box)

**Enrichment:**
- See Step 10 (p.16)

**Child Watching:**
- Observe for students identifying and making use of the structures and patterns they see on the T-chart.

### Module 2- Session 3: The Change Box, Day 2

<table>
<thead>
<tr>
<th>1.OA.6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access Prior Learning:</strong></td>
</tr>
<tr>
<td>1.OA.6: Using strategies to add and subtract within 20.</td>
</tr>
<tr>
<td>Students will have spent time working on knowledge of doubles to develop their reasoning strategies.</td>
</tr>
<tr>
<td>Students will also rely on their work adding and subtracting 1 and 2 from a number.</td>
</tr>
</tbody>
</table>

**Developing the Big Idea:**
Students will deepen their understanding of the relationships between numbers as they work towards developing the Big Idea of algebraic functions. This supports the Big Idea that place value patterns occur, and that quantities can be compared. This continues to develop students’ understanding of numbers and their relationships to one another.

<table>
<thead>
<tr>
<th>MP.2</th>
<th>MP.7</th>
</tr>
</thead>
</table>

**Instructional NOTE:**
- Continuously reinforce strategies that involve adding and subtracting.
- The Math Practices 7 & 8 both begin with “look for” which implies that “children who are mathematically proficient pay attention to patterns as they do mathematics.” These lessons provide opportunities for students to work on these two math practices. “Children should be engaged in looking for, describing, and extending patterns to help them develop the skills to look for structure and express regularity in all mathematical situations.” (Van de Walle, et al., 2014, p. 243).

**Enrichment:**
- See Steps 9 & 11 (p. 20), see Extensions in the margin (p. 20)

**Child Watching:**
- Observe for students identifying and making use of the structures and patterns they see on the T-chart.

### Module 2- Session 4: Introducing Work Place 8B Change Cards

<table>
<thead>
<tr>
<th>1.NBT.4</th>
<th>1.NBT.5</th>
<th>1.NBT.6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access Prior Learning:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.OA.6: Using strategies to add and subtract within 20.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students will have spent time working on knowledge of doubles to develop their reasoning strategies. Students will also rely on their work adding and subtracting 1 and 2 from a number.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Instructional NOTE:**
- The assessment binder under the Bridges Unit Assessment Tab provides the scoring guide for the for Time & Change Checkpoint (p. 84) It can also be downloaded from the site and scores entered digitally to create a color coded spreadsheet. [https://bridges.mathlearningcenter.org/implementation](https://bridges.mathlearningcenter.org/implementation)

- Consider revisiting this as you launch into work with the big idea of algebraic functions.

**Enrichment:**
- See the right hand side where it says, “assessment tools.”
**Developing the Big Idea:** Students will deepen their understanding of the relationships between numbers as they work towards developing the Big Idea of algebraic functions. This is supported by the big idea that place value patterns occur, and that quantities can be compared. This continues to develop students’ understanding of numbers and their relationships to one another.

- Consider collecting a grade on this Work Place. Use the grading rubric 8B attached to the Suggestions for Reporting Progress documents. Note: Allow several days of exposure to the Work Place before collecting a grade.

**Enrichment:** See step 10 (p. 23)

**Child Watching:**
- Use the Checkpoint Scoring Guide to inform your instruction. Pull small groups as needed to support students in areas they are not secure.

### Module 3- Session 1: Folding & Flying Paper Gliders

**1.G.3**

**MP.1**

**MP.6**

**Access Prior Learning:**
- K.G.6: Compose simple shapes to form larger shapes.
- 1.G.3: Unit 5 provided opportunities for students to secure this standard

**Developing the Big Idea:** This session sets the stage for developing the idea that distance is measured as a series of iterated units. Different measurement units can be compared and so can quantities. This continues to develop students’ understanding of numbers and their relationships to one another.

**Instructional NOTE:**
- Read the Math Practices in Action in the margin (p. 6).
- Consider making cross content connections with the Next Generation Science Standards for this module.

**Enrichment:**

**Child Watching:**
- Observe for students struggling with creating their glider and support as needed.

### Module 3- Session 2: Constructing Runways

**1.NBT.2**

**1.NBT.5**

**1.MD.2**

**MP.1**

**MP.7**

**Access Prior Learning:**
- K.MD.2: Directly compare two objects with a measurable attribute in common.
- Students have experience with measuring from the Penguin modules in Units 4 and 6.

**Developing the Big Idea:** Students work on developing the idea that distance is measured as a series of iterated units. Different measurement units can be compared and so can quantities. This continues to develop students’ understanding of numbers and their relationships to one another.

**Instructional NOTE:**
- Although the runway construction with unifix cubes is a great idea for measuring distances, consider passing the task of devising a plan to measure the distance of flight to the students (thus moving toward DOK 4 thinking). Students might come up with unifix cubes on their own; however, leaving this open-ended can create opportunities for deeper growth and common measurement misconceptions to present themselves.
- Consider starting with an open-ended opportunity for measuring, and using an A/D/E day to do this, following with this session after.
- Having students cutting a length of string to represent the distance, then spending time measuring the string might create opportunities to compare distances and measuring.

**Enrichment:** See the Instructional Note.

**Child Watching:** Observe for student misconceptions about measurement including:
- Leaving gaps between units
- Having overlaps (if using tools like popsicle sticks)
- Not starting and ending at the object’s beginning or ending
- Not attending to the linear aspect (following a curved shape of flight pattern)
- Assuming an item is longer than another same-sized item if the measuring unit choice resulted in a larger quantity.
- Comparing measurements that were measured using different-sized units (popsicle sticks versus unifix cubes)

### Module 3- Session 3: Gliders in Flight

**1.NBT.1**

**1.NBT.3**

**1.NBT.4**

**1.MD.1**

**1.MD.2**

**MP.1**

**MP.2**

**Access Prior Learning:**
- K.MD.2: Directly compare two objects with a measurable attribute in common.
- Students have experience with measuring from the Penguin modules in Units 4 and 6.

**Developing the Big Idea:** Students work on developing the idea that distance is measured as a series of iterated units. Different measurement units can be compared and so can quantities. This continues to develop students’ understanding of numbers and their relationships to one another.

**Instructional NOTE:**
- If teachers choose to let students design their own method for measuring, students might have discovered that, in order to compare distances with each other a common unit of measure must be used, which is better place for the unifix cube runways to come in.

**Enrichment:** Students could begin engineering different paper airplanes and determining which design of airplanes flies farthest.

-continues on next page-
### Module 3- Session 4: Analyzing the Flight Data

**Access Prior Learning:**
- 1.NBT.1
- 1.NBT.3
- 1.NBT.4
- 1.MD.4
- MP.1
- MP.2

**Instructional NOTE:**
- 1.MD.4
- 1.MD.1
- 1.MD.2

**Developing the Big Idea:**
Students work on developing the idea that **distance is measured as a series of iterated units**. Different measurement units can be compared and so can quantities. This continues to develop students’ understanding of numbers and their relationships to one another.

**Child Watching:** Observe for student misconceptions about measurement including:
- Leaving gaps between units
- Having overlaps (if using tools like popsicle sticks)
- Not starting and ending at the object’s beginning or ending
- Not attending to the linear aspect (following a curved shape of flight pattern)
- Assuming an item is longer than another same-sized item if the measuring unit choice resulted in a larger quantity.
- Comparing measurements that were measured using different-sized units (popsicle sticks versus unifix cubes)

**Instructional NOTE:**
- Read the Math Practices in Action in the margin (p. 22).

**Enrichment:** See Step 10 or ask students to ask and answer their own questions about the data (p. 23).

**Child Watching:**
- Observe for student strategies when engaging in addition and subtraction as they compare data points.

### Module 3- Session 5: More Glider Flights

**Access Prior Learning:**
- 1.NBT.1
- 1.NBT.3
- 1.NBT.4
- 1.MD.1
- 1.MD.2
- MP.1
- MP.2

**Instructional NOTE:**

**Enrichment:** Students could begin engineering different paper airplanes and determining which design of airplanes flies farthest.

**Child Watching:** Observe for student misconceptions about measurement including:
- Leaving gaps between units
- Having overlaps (if using tools like popsicle sticks)
- Not starting and ending at the object’s beginning or ending
- Not attending to the linear aspect (following a curved shape of flight pattern)
- Assuming an item is longer than another same-sized item if the measuring unit choice resulted in a larger quantity.
- Comparing measurements that were measured using different-sized units (popsicle sticks versus unifix cubes)

### Module 3- Session 6: Analyzing the Second Round of Flight Data

**Access Prior Learning:**
- 1.NBT.1
- 1.NBT.3
- 1.NBT.4
- 1.MD.4
- MP.1

**Instructional NOTE:**
- The Assessment Binder under the Bridges Unit Assessment tab provides the scoring guide for the for Unit 8 Assessment (p. 91) It can also be downloaded from the site and scores entered digitally to create a color-coded spreadsheet. See the right hand side where it says, “assessment tools.”
- Standards 1.NBT.3, 1.NBT.5, 1.MD.1, 1.MD.2, & 1.MD.4 are targeted for mastery according to the Grade 1 Assessment Map in the Assessment Binder under the Assessment Overview tab (pp. 13-15).
- The assessment provides another opportunity to assess 1.NBT.4, 1.NBT.6, & 1.NBT.1, which were targeted for security in previous units.

**Enrichment:** See Step 11 (p. 24)
**Child Watching:**
- At this point teachers should be concerned about those students struggling with one or more of the following. (See Assessment Binder, Bridges Unit Assessment tab, p. 61 for more information).
  - Solving addition and subtraction story problems within 20.
  - Counting on and counting back to solve addition and subtraction combinations within 20.
  - Adding and subtracting with sums and minuends to 10 using strategies that are efficient, accurate and flexible.
  - Working from familiar facts such as doubles, make 10s, and add tens.
  - Counting to 120
  - Reading and writing numbers to 100
  - Understanding that whole numbers between 10 and 100 are composed of 10s and 1s.

Any students struggling with these standards at this point could benefit from use of the Bridges Intervention materials.

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**Module 4- Session 1: Baby Lengths**

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
<th>Instructional NOTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.NBT.1 1.NBT.3 1.MD.1 1.MD.2</td>
<td>1.OA.3 1.NBT.1 1.NBT.3 1.NBT.4 1.NBT.5</td>
</tr>
<tr>
<td><strong>MP.6</strong></td>
<td><strong>MP.1 MP.5</strong></td>
</tr>
<tr>
<td><strong>Securing the Big Idea:</strong></td>
<td><strong>Instructional NOTE:</strong></td>
</tr>
<tr>
<td>Students work on developing the idea that distance is measured as a series of iterated units. Different measurement units can be compared and so can quantities. This continues to develop students’ understanding of numbers and their relationships to one another.</td>
<td>Attend to culturally responsive practices when planning for this module. In analyzing the make-up of your class, teachers will want to be aware of any students who might not have knowledge of their birth details, or family history. If that is the case, teachers can brainstorm with student’s ways to participate by using a baby’s length from another child.</td>
</tr>
</tbody>
</table>

**Enrichment:** See Extension in the margin (p. 6)

**Child Watching:**
- Observe for student misconceptions about measurement including:
  - Leaving gaps between units
  - Having overlaps (if using tools like popsicle sticks)
  - Not starting and ending at the object’s beginning or ending
  - Not attending to the linear aspect (following a curved shape of flight pattern)
  - Assuming an item is longer than another same-sized item if the measuring unit choice resulted in a larger quantity.

Comparing measurements that were measured using different-sized units (popsicle sticks versus unifix cubes)

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**Module 4- Session 2: How We Have Grown**

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
<th>Instructional NOTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.OA.3 1.NBT.1 1.NBT.3 1.NBT.4 1.NBT.5</td>
<td><strong>Read the Math Practices in Action in the margin (p. 11).</strong></td>
</tr>
<tr>
<td><strong>MP.1 MP.5</strong></td>
<td><strong>Enrichment:</strong></td>
</tr>
<tr>
<td><strong>Securing the Big Idea:</strong></td>
<td><strong>Child Watching:</strong></td>
</tr>
<tr>
<td>Students work on developing the idea that distance is measured as a series of iterated units. Different measurement units can be compared and so can quantities. This continues to develop students’ understanding of numbers and their relationships to one another.</td>
<td>Observe for students’ strategies when adding and subtracting</td>
</tr>
<tr>
<td></td>
<td>Observe for students’ written methods as they describe their strategies</td>
</tr>
<tr>
<td></td>
<td>Continue to observe for measurement misconceptions as before</td>
</tr>
</tbody>
</table>

**Enrichment:**
### Module 4- Session 3: How Big is This Baby?

<table>
<thead>
<tr>
<th>1.NBT.2</th>
<th>1.NBT.3</th>
<th>1.NBT.4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access Prior Learning:</strong></td>
<td><strong>1.MD.1</strong></td>
<td><strong>1.MD.2</strong></td>
</tr>
<tr>
<td>• 1.MD.2: Directly compare two objects with a measurable attribute in common.</td>
<td>• 1.MD.2: Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.</td>
<td>• Module 3 on Gliders</td>
</tr>
<tr>
<td><strong>Securing the Big Idea:</strong></td>
<td><strong>1.MD.4</strong></td>
<td><strong>MP.4</strong></td>
</tr>
<tr>
<td>Students work on developing the idea that distance is measured as a series of iterated units. Different measurement units can be compared and so can quantities. This continues to develop students’ understanding of numbers and their relationships to one another.</td>
<td><strong>MP.6</strong></td>
<td><strong>Instructional NOTE:</strong></td>
</tr>
<tr>
<td><strong>Instructional NOTE:</strong></td>
<td><strong>1.NBT.2</strong></td>
<td><strong>1.NBT.3</strong></td>
</tr>
<tr>
<td>• The Big Idea of indirect measurement is prevalent here when the baby leaves and students have just the string. Students are not making a direct comparison.</td>
<td><strong>Instructional NOTE:</strong></td>
<td><strong>Child Watching:</strong></td>
</tr>
<tr>
<td><strong>Enrichment:</strong></td>
<td><strong>MP.4</strong></td>
<td><strong>1.NBT.4</strong></td>
</tr>
<tr>
<td><strong>Child Watching:</strong></td>
<td><strong>1.MD.1</strong></td>
<td><strong>1.MD.2</strong></td>
</tr>
<tr>
<td>• Observe for student understandings about ordering lengths (seriation) and transivity.</td>
<td>• Module 3 on Gliders</td>
<td><strong>Observing for student misconceptions about measurement including:</strong></td>
</tr>
<tr>
<td><strong>Enrichment:</strong></td>
<td><strong>1.MD.4</strong></td>
<td><strong>MP.5</strong></td>
</tr>
<tr>
<td><strong>Child Watching:</strong></td>
<td><strong>MP.1</strong></td>
<td><strong>MP.5</strong></td>
</tr>
<tr>
<td>• Observe for student understandings about ordering lengths (seriation) and transivity.</td>
<td><strong>Instructional NOTE:</strong></td>
<td><strong>Observing for student misconceptions about measurement as noted in previous session.</strong></td>
</tr>
<tr>
<td><strong>Instructional NOTE:</strong></td>
<td><strong>K.MD standards</strong></td>
<td><strong>Previous sessions</strong></td>
</tr>
<tr>
<td>• This lesson can provide opportunities for student reflection about their learning over time. This would be an opportunity to visit student math portfolios, if they have them, and add items to the gallery walk from their portfolios.</td>
<td><strong>Supports</strong></td>
<td><strong>Child Watching:</strong></td>
</tr>
<tr>
<td><strong>Enrichment:</strong></td>
<td><strong>K.MD</strong></td>
<td><strong>Observing for students celebrating their learning and success!</strong></td>
</tr>
</tbody>
</table>

### Module 4- Session 4: The Baby & Me

<table>
<thead>
<tr>
<th>1.OA.3</th>
<th>1.NBT.1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access Prior Learning:</strong></td>
<td><strong>1.NBT.4</strong></td>
</tr>
<tr>
<td>• 1.MD.2: Directly compare two objects with a measurable attribute in common.</td>
<td>• 1.NBT.4: Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.</td>
</tr>
<tr>
<td><strong>Securing the Big Idea:</strong></td>
<td><strong>1.MD.5</strong></td>
</tr>
<tr>
<td>Students work on developing the idea that distance is measured as a series of iterated units. Different measurement units can be compared and so can quantities. This continues to develop students’ understanding of numbers and their relationships to one another.</td>
<td><strong>1.MD.2</strong></td>
</tr>
<tr>
<td><strong>Instructional NOTE:</strong></td>
<td><strong>MP.1</strong></td>
</tr>
<tr>
<td>• The Big Idea of comparing measurements that are not a typical straight length is prevalent here as students are unable make a direct comparison of the circumference of their heads. Students must transfer that measurement to the string and then compare the measurements.</td>
<td><strong>Instructional NOTE:</strong></td>
</tr>
</tbody>
</table>

### Module 4- Session 5: Time & Change

<table>
<thead>
<tr>
<th>Supports</th>
<th><strong>K.MD</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access Prior Learning:</strong></td>
<td><strong>MP.4</strong></td>
</tr>
<tr>
<td>• K.MD standards</td>
<td><strong>Instructional NOTE:</strong></td>
</tr>
<tr>
<td>• Previous sessions</td>
<td>• This lesson can provide opportunities for student reflection about their learning over time. This would be an opportunity to visit student math portfolios, if they have them, and add items to the gallery walk from their portfolios.</td>
</tr>
<tr>
<td><strong>Securing the Big Idea:</strong></td>
<td><strong>Enrichment:</strong></td>
</tr>
<tr>
<td>Students work on developing the idea that distance is measured as a series of iterated units. Different measurement units can be compared and so can quantities. This continues to develop students’ understanding of numbers and their relationships to one another.</td>
<td><strong>Child Watching:</strong></td>
</tr>
<tr>
<td><strong>Enrichment:</strong></td>
<td><strong>Observing for students celebrating their learning and success!</strong></td>
</tr>
</tbody>
</table>

### References


