Creating meaningful transformation in mathematics education

Developing learners who are independent, assertive constructors of their own understanding
## Kindergarten
### K.12: Addition and Subtraction within 10

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<td>Beads and pipe cleaners</td>
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<td>4</td>
<td>Lesson Series 1</td>
<td>Day 1 Addition Practice</td>
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<td>¾ inch Number Lines</td>
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<td><em>The Very Hungry Caterpillar</em></td>
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<td>1</td>
<td>Expert Task</td>
<td>The Park (2 pages)</td>
<td>1 per student</td>
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<tr>
<td>2-3</td>
<td>Lesson Series 2</td>
<td>Student Recording Sheets</td>
<td>1 per student</td>
<td>Linking Cubes (or unifix cubes , ten frames, or counter)</td>
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<td>“I have...who has...” (2 versions)</td>
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<td>1-2</td>
<td>Milestone Task</td>
<td>Classroom Helpers (2 pages)</td>
<td>1 per student</td>
<td>Picture Cut Outs</td>
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Unit Overview

Big Idea
Real-world problems involving putting together, adding to, taking from, or taking apart can be solved using addition and/or subtraction.

Unit Objectives
- Students will be able to represent addition and subtraction with multiple objects, pictures, numbers and words.
- Students will be able to add and subtract fluently within 5.
- Students will be able to solve addition and subtraction word problems within 10

Unit Description
This unit will continue to develop student understanding of addition and subtraction in context up to the number 10. It will also provide opportunities for students to represent these problems through various models.

CCSS-M Content Standards
Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.
K.OA.1. Represent addition and subtraction with objects, fingers, mental images, drawings,2 sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
K.OA.2. Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.
K.OA.5. Fluently add and subtract within 5.

Progression of Mathematical Ideas

<table>
<thead>
<tr>
<th>Prior Supporting Mathematics</th>
<th>Current Essential Mathematics</th>
<th>Future Mathematics</th>
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<tbody>
<tr>
<td>Students have worked with composing and decomposing numbers up to 10. They are continually working on accuracy with counting and continue to build their fluency with the number 5. They have worked with problems of putting together as well as taking apart.</td>
<td>Within this unit, students will be distinguishing between addition and subtraction situations, within 10.</td>
<td>In 1st grade, students will be learning subtraction as comparison and missing addend, as well as continuing to develop their understanding of addition problems.</td>
</tr>
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</table>
Unit Design

All SFUSD Mathematics Core Curriculum Units are developed with a combination of rich tasks and lessons series. The tasks are both formative and summative assessments of student learning. The tasks are designed to address four central questions:

**Entry Task:** What do you already know?

**Apprentice Task:** What sense are you making of what you are learning?

**Expert Task:** How can you apply what you have learned so far to a new situation?

**Milestone Task:** Did you learn what was expected of you from this unit?

Total Days: 10 days

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<tr>
<th>Entry Task</th>
<th>Expert Task</th>
<th>Milestone Task</th>
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<tr>
<td><strong>Bracelets</strong></td>
<td><strong>The Park</strong></td>
<td><strong>Classroom Helpers</strong></td>
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<tr>
<td><strong>CCSS-M Standards</strong></td>
<td>K.OA.1 K.OA.2</td>
<td>K.OA.1 K.OA.2</td>
</tr>
</tbody>
</table>
| **Brief Description of Task** | Students engage in a problem that asks them to:  
• In the context of a story problem, show how many more bracelets they'll need to make a total  
• Show decomposition of 7 in two ways in the context of making bracelets.  
• Record their thinking here as well. | Students engage in multiple story problems where they are asked to either add or subtract. | Students engage in multiple problems where they are asked to add/subtract and show number combinations. All of these require students to show how they got their answer through the recording of their thinking process and/or tools they used to assist in solving the problems. |
| **Source** | MARS 2012 | MARS 2013 | MARS 2014 |

<table>
<thead>
<tr>
<th>Lesson Series 1</th>
<th>Lesson Series 2</th>
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<tr>
<td><strong>CCSS-M Standards</strong></td>
<td>K.OA.1 K.OA.2 K.OA.5</td>
</tr>
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</table>
| **Brief Description of Lessons** | Adding and subtracting within 10 using *The Very Hungry Caterpillar* as an anchor text.  
In both lesson series there is a “launch” component that provides practice with fluently adding and subtracting within 5. | Working with story problems in addition and subtraction. |
| **Sources** | SFUSD Teacher Created | SFUSD Teacher Created |
### Math Talks - Overview for the Unit

For the K.12 unit, there are multiple types of appropriate Math talks, including dot talks, rekenreks (from *Number Talks* by Sherry Parrish), and number strings.

**For more information on Math Talks, including the procedure for doing a Math Talk, see the Math Teaching Toolkit. A useful reference is also Sherry Parish’s book “Number Talks.”**

**Dot Talks:** Dot talks are appropriate for this unit because they help meet the standard of seeing addends that make a sum.

*Note:* *Use the dot talks in this unit to get kindergarteners to look at addends - this can be done with random patterns, domino patterns, or five/ten/twenty frame patterns.*

**Number Strings:** Number strings are done the same way as a dot talk, except students are looking at equations. Number strings are intended to build on one another, so a string of problems may be $5 + 3, 5 + 4, 5 + 5$. If this strand was chosen, my underlying purpose would be for students to find an answer ($5 + 3 = 8$), then for the next problem seeing it as one more than $5 + 3$ (+1), in turn knowing it is 9 because they already know that $5 + 3 = 8$ (building on what they already know).

**Rekenreks:**

Rekenrek number talks are another great way to engage with students with addends - begin with number combinations, moving toward using the rekenreks to find missing addends and combinations of number that equal a specific sum. See the *Number Talks* book by Sherry Parrish for a variety of rekenrek string activities. Some other ideas can be found here: [http://www.k-5mathteachingresources.com/Rekenrek.html](http://www.k-5mathteachingresources.com/Rekenrek.html)
## Entry Task

### Bracelets

**What will students do?**

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<thead>
<tr>
<th>Mathematics Objectives and Standards</th>
<th>Framing Student Experience</th>
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<tr>
<td><strong>Math Objectives:</strong></td>
<td>Notes: Make 3 bracelets using beads and pipe cleaners for use in acting out the task. This problem specifically denotes bracelets made with white and blue beads, but use what is accessible to you.</td>
</tr>
<tr>
<td>● Assess students’ abilities to model and solve a subtraction problem</td>
<td>Launch:</td>
</tr>
<tr>
<td>● Assess students’ abilities to show multiple ways to compose a number</td>
<td>To help students understand the task, act out the problem with them first. Ask students what tools they’d like to use to solve this problem. Re-enact the problem using the tools. Pair up students and have them answer the question posed using pictures, numbers and words.</td>
</tr>
<tr>
<td><strong>CCSS-M Standards Addressed:</strong> K.OA.1, K.OA.2</td>
<td>During:</td>
</tr>
<tr>
<td><strong>Potential Misconceptions</strong></td>
<td>Observe what tools students are using to solve the problem. Assist students who may need help in understanding the problem by asking probing questions to spark ideas.</td>
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<tr>
<td>● Students may not understand “how many more” (the idea of being given the total, but figuring out the space between - either the addend or subtrahend). They may not yet be able to count on and stop at the target number.</td>
<td>Repeat the launch process for the second question and let students solve and record their solutions.</td>
</tr>
</tbody>
</table>

**Closure/Extension:**

If you have extra time, have students play one of the games/activities from K.11 listed below, or any other games or activities that kids are familiar with:

1) Ten Frame Concentration (up to 100)
2) Comparison Top-It
3) Number Count
**Bracelets**

**How will students do this?**

**Focus Standards for Mathematical Practice:**
- MP1 - make sense of problems and persevere in solving them
- MP4 - model with mathematics

**Structures for Student Learning:**

**Academic Language Support:**
- **Vocabulary:** Bracelets, beads
- **Sentence frames:** She needs _____ more bracelets.

**Differentiation Strategies:**
- Do this in a small group.

**Participation Structures (group, partners, individual, other):**
- This task can be done whole class, with half of the class, or in small groups, depending on the need of your students.
Lesson Series #1

Lesson Series Overview: In this lesson series, students are working on addition and subtraction within 10 using the story *The Very Hungry Caterpillar*. Two main foci for both lesson series are multiple representation and reasoning around addition and subtraction in a context.

CCSS-M Standards Addressed: K.OA.1, K.OA.2

Time: 4 days

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<td><strong>Description of Lesson:</strong></td>
<td><strong>Materials</strong></td>
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<tr>
<td>Notes: Lesson series 1, lessons 1,2, and 3 will be centered around the book <em>The Very Hungry Caterpillar</em> by Eric Carle. There are Independent Work Time/Centers included for this unit, but they are not mandatory. They can be replaced by any other game or activity you deem appropriate for the unit.</td>
<td>• White boards, markers, and erasers (1 per student)</td>
</tr>
<tr>
<td>Launch: Remind students what it means to add: finding a sum, or bringing groups of things together. If need be demonstrate adding students to students, by visible attributes (e.g. boy + girls= students). Review what happens when we add - we end up with a quantity that is larger (made up of two, or more, smaller quantities).</td>
<td>• Addition “Quick Look” cards</td>
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<tr>
<td><strong>Introduce Quick Look cards</strong> (addition within 5): Just like in unit K.11, students will be practicing their fluency using quick look cards. For this unit, the quick look cards will focus on automaticity of addition and subtraction within 5.</td>
<td>• <em>The Very Hungry Caterpillar</em> by Eric Carle</td>
</tr>
<tr>
<td>This is a short (5-7 minutes), focused process. Students will be using their whiteboards to write down a number bond representation of the addition problem in response to the card you flash. Remind students that they will only see Quick Look cards for a few seconds. Then tell students that when they see the card they are to think in their brains what addition problem is represented by the ten-frame. They should visualize it and draw a number bond that matches. For each card, record the addends and the sum in the</td>
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![Number Bonds Diagram](https://www.basics-work-explained.com)
number bond anchor chart and move on to the next. Next to each bond write the equation (elicit the response from students).

Combinations to 20
Read The Very Hungry Caterpillar to the class. Once you finish reading the book, lead a discussion with students about what the caterpillar ate each day for the first five days. Place the cut outs on the butcher paper and label the number of items the hungry caterpillar ate each day.

Using the Ten and Twenty-Frame Fruit Combinations Sheet, talk through different combination of fruits the very hungry caterpillar might have eaten. Go through combinations 1-3 (combinations based on the story). Elicit from students the equation that matches the ten-frame.

Tell students you are going to show them some other combinations the very hungry caterpillar might have eaten. Using the pre-made ten and twenty frames and the whiteboards, have students write the equations that go with the twenty frames. There are cards that only go to a combination as high as ten, as well as cards that show combinations that go to twenty.

Alternatively, show students equations and have them use ten frames and unifix cubes (or two sided counters, etc.) to show the different combinations. Record the combinations.

Independent Work Time/Centers:
For independent work time, introduce Domino Addition Top-It.

1) Domino Addition Top-It
2) Addition Practice Worksheet # 1

Domino Top-It instructions:
1. If you have real dominoes, turn them face down on the table. If you are using paper dominoes, put them facedown in a stack.
2. Each player takes a domino and turns it over. If you are using paper dominoes, take one from the top of the stack.
3. The player with the larger total number of dots takes both dominoes. First estimate, then count.
4. In case of a tie, each player turns over another domino. The player with the larger total takes all of the dominoes that are face up.
5. The game is over when all of the dominoes have been played. The player who has more dominoes wins.
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<tr>
<td><strong>Description of Lesson:</strong></td>
<td><strong>Materials</strong></td>
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| **Notes:** The number lines provided in the unit are divided into sections that are a \( \frac{3}{4} \) inch square, purposely made to fit unifix cube combinations. A template for 1 inch squares is also provided for use with 1 inch tiles, or other manipulatives such as counters. The directions for this lesson say to use unifix cubes, but fruit counters, or other counters will work just as well and serve the same purpose. For this activity, look at each square as one piece of fruit and how much fruit takes up each space rather than the “hop” between spaces. | • \( \frac{3}{4} \) inch square number lines  
• Unifix cubes (for demonstration - in 5 different colors)  
• *The Very Hungry Caterpillar* |
| When using the unifix cubes (or tiles) have students line them up next to the number line, rather than on it, so they can use it as a measurement tool, while still allowing them to see the line. You may choose to use the modified number line that has a set of numbers and grayed-out boxes next to the line as a scaffold for placement. | |
| **Launch:** Repeat the “Quick Look” card routine from Lesson Series 1, Lesson 1. Focus on fluently adding within five and seeing it with multiple representations. | |
| **Number Line:** | |
| *Note:* Either have students sitting in a circle where they all have access to the visual on the carpet in the middle, or using a magnetic version to put on the board. | |
| Introduce students to the number line you will be using today and tell them that they will be using the number line to record how much the hungry caterpillar ate. | |
| Reread the *The Very Hungry Caterpillar* up to day five. This time, while reading, use unifix cubes to represent the fruit that was eaten by the Very Hungry Caterpillar each day. After reading each page of the story, have a student pick a color of unifix cubes to represent the type of fruit the caterpillar ate and place it on the number line after the previous cubes. After each addition, ask students how many pieces of fruit the very hungry caterpillar has eaten now, how they know, and have students tell what each color represents. When you get to the end, ask students how many pieces of fruit have been eaten total and how they know. | |
Pose the following questions to students, one question at a time. Remove the extra pieces after each question, so you always start with the original 15 pieces. Have students use their number lines to show the numbers, then write number bonds next to the answers so students see the relationship both ways.

For each problem below, have a student come up and show their reasoning using the number line.

1) If the very hungry caterpillar ate one more pear, how many pieces of fruit would he have eaten? (16 pieces)
2) If the very hungry caterpillar ate three more apples, how many pieces of fruit would he have eaten? (18 pieces)
3) How many more pieces of fruit would the very hungry caterpillar need to eat in order to eat 20 pieces of fruit total? (5 pieces) Prompt students to use the space on the number line to count up to 20. (This number bond will have the whole listed as 20, one part filled in with 15, and then students need to generate the space to 20 is 5 units).

Tell students that the very hungry caterpillar has some critter friends who were also very hungry. They didn’t eat the same thing as the hungry caterpillar though. They liked the other foods that he ate, like the chocolate cake and the ice cream cones better.

Pass out 20 unifix cubes and a number line to each student or each pair of students.

Tell students they are going to model how much the Very Hungry Caterpillar’s critter friends ate. Tell a story to go with the each frame (each page goes from an organized ten frame to a random ten frame, to no frame) as you show students one of the Critter Friend Picture Cards. Have students represent the amount (two addends) using two different colored unifix cubes. If students are working in partners, have them each take an addend representing the different types of food. Below are some possible sentences and questions:

1) Snail wanted to have a dinner party, so he bought the items shown on the ten-frame (show the frame). Use the unifix cubes to show what he bought. What equation do the unifix cubes show? (Extension: How many would he have if he bought ____ more?)
2) Snail went grocery shopping and bought _____ pieces of cake and _____ lollipops. All together, how many things did he buy? (Extension: “Are there other ways that Snail could have made the total _____? Show me a different combination and tell me what they represent.”)
Prompt students to share how they showed the sum in unifix cubes. Have students orally share what the unifix cubes represent, then prompt them to tell you the matching equation. Again, bring in the model of the number bond to show another model of part-part whole. Do several of these with the class, modeling all three representations each time.

**Independent work time/Centers:**
1) Domino Addition Top-It
2) Addition Practice Worksheet #2

### Lesson Overview - Day 3

**Description of Lesson:**

**Launch:**
Remind students what it means to subtract - finding a difference, either taking apart a larger group or taking from a group. If need be, demonstrate subtraction. Review what happens when we subtract, again using the vocabulary of taking apart or taking from.

Introduce “Quick Look” cards (subtraction within 5). Students will follow the same process as they did in the first two lessons in the series, again using the whiteboard, but this time they will write the equation that matches the ten frames.

Pass out whiteboards, markers, and erasers.

**Subtraction Problems:**
Pass out 10 unifix cubes and number lines to each student to use when answering the problems.

Use the Critter Friend Subtraction Cards for this activity: Use the sentence frames below to tell stories about the Critter Friends. As you tell the stories, have students tell you how to cross off items to show a subtraction problem using the model.

**Snail:**
1) Snail had collected ten pieces of food - nine pieces of chocolate cake and one ice cream cone. While on his way home he accidentally dropped the ice cream cone. How many pieces of food does he have now? (9 - 1 = 8)

### Resources

**Materials**
- Subtraction Quick Look Cards
- White boards, markers, and erasers (1 per student)
- Subtraction Concentration
- Subtraction Practice Worksheet #1
- Critter Friend Subtraction Picture Cards
- Number lines (1 per student)
- Unifix cubes (10 per student)
2) Snail went to his friend Caterpillar’s house for dinner. He took four pieces of cake and four ice cream cones. Caterpillar’s favorite meal is chocolate cake, so Snail gave all of the cake to him. How many items pieces of food does Snail have left to eat? \(8 - 4 = 4\)

3) There was a party at Snail’s house. He served cake and cherry pie. The picture shows how much cake and pie he started with. All of the cherry pie got eaten. What did he have left? \(7 - 5 = 2\)

Worm:
For the worm pictures, display all of the visuals representations of problems at once. Read the following story problems and have the students decide which picture represents the problem you read (have students work it out with their unifix cubes). Once the students have made a decision, prompt with, “How do you know?” and “why does it represent ‘this’ one, and not ‘that’ one? Once you’ve agreed as a class, write the equation on the Critter Friend page.

1) Worm went grocery shopping. He bought six items. He decided to eat one now and save the rest for later.

2) Worm took six items to a picnic. Four of them got eaten so he brought two home to eat for dinner.

3) Worm started out with two pieces of food. He gave one to his friend Ladybug, now he has one.

Independent Work Time/Centers:
1) Subtraction Concentration
2) Subtraction Practice Worksheet #1

Lesson Overview - Day 4

Description of Lesson:
Launch:
Subtraction “Quick Look” cards. Follow the same procedure as on day 3 of this lesson series.

Addition and Subtraction Problems:
Today, students are going to use the third and fourth pages of the Critter Friend Subtraction page (Ladybug) to first help create addition and subtraction problems,

Creating a Story for a Ten Frame:
Begin by showing the Critter Friends page 3 (Ladybug). Ask students to look at the first ten-frame. Ask, “What does this ten frame represent right now? Can we write a subtraction problem that starts with five
“How about an addition problem? What is a story we could write about 5 pickles?”

Work with students to come up with a problem, solve it by crossing off, then write the equation next to it. There are three of the same ten frames to record different problems.

**Working with Number Combinations that Equal 9:**
Give students a number line (from Day 2 and 3), and 10 unifix cubes.

Have students work through the following problem using the unifix cubes. Record the equations that match their thinking on the bottom of the page. Show page 4 of the Critter Friends and tell the students the following story: Ladybug is going on a picnic. She is taking 9 pieces of food. She can take any combination of pickles and cherry pie, as long as it equals 9. She has two picnic baskets because it won’t all fit in one basket. What are combinations of pickles and cherry pie she can take?

**Modeling Addition and Subtraction:**
The following problems are both addition and subtraction. Use the unifix cubes to model the problems with the students and decide whether they are addition or subtraction based on the fact of whether you are adding or removing unifix cubes. Each time you do a problem record the equation on the board after students do the problem using the unifix cubes and number lines.

1) There were 5 boys and 5 girls. How many kids were there total? (5 + 5 = ?)
2) There were 8 children waiting in line, four walked away. How many are standing in line now? (8 - 4 = ?)
3) Five apples are on the table. Three are read and the rest are green. How many apples are green? (3 + ? = 5 or 5 - 3 = ?)
4) A student had a birthday party and made 10 cupcakes. Eight of the cupcakes were eaten. How many cupcakes were left after the party? (10 - 8 = 2)

**Independent Work Time/Centers:**
1) Mixed Practice Worksheet #1
2) Subtraction Concentration
3) Domino Addition Top-It
## Expert Task

### The Park

**What will students do?**

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<tr>
<th>Mathematics Objectives and Standards</th>
<th>Framing Student Experience</th>
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</thead>
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<tr>
<td><strong>Math Objectives:</strong></td>
<td>Note: You will need to cut out the animals that go with the task ahead of time so that you may act it out with the class.</td>
</tr>
<tr>
<td>● Solve addition and subtraction situations and represent thinking through pictures, numbers or words.</td>
<td><strong>Launch:</strong></td>
</tr>
<tr>
<td><strong>CCSS-M Standards Addressed:</strong></td>
<td>Ask students about what they see when they go to the park. Guide students to think about what critters they see when they are there.</td>
</tr>
<tr>
<td>K.OA.1</td>
<td>Read students the task and act out each of the parts of the task with the students. Clip Images are available for you to use, but you’ll need to cut them out and either place magnets on the back or put tape up on the back to help place objects. For example, as you read that they saw 6 butterflies, ask a student to come and put 6 butterflies on the board, etc. Act out the problem one more time and ask the class which tools could we use to help us solve the problem. If student’s don’t volunteer any tools, ask them if we could use, ten frames, unifix cubes, counters, equations, etc.</td>
</tr>
<tr>
<td>K.OA.2</td>
<td><strong>During:</strong> Let students work either with a partner or by themselves to record their thinking for the problem posed (repeat process for each of the questions). Observe students, looking for which tools they are using to help them solve the problems and whether it is an effective tool. While students are working prompt those who are stuck with, “What do you think you could try? What did you try? Is there a tool you could use to help you solve this problem? How can you record your thinking?”</td>
</tr>
<tr>
<td><strong>Potential Misconceptions</strong></td>
<td><strong>Closure/Extension:</strong> If there’s time, have students play Subtraction Concentration and/or Domino Addition Top-It.</td>
</tr>
<tr>
<td>● Students may not know how to model the problem using tools, such as ten frames or rekenreks.</td>
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## The Park

### How will students do this?

**Focus Standards for Mathematical Practice:**
- MP 1 - Make sense of problems and persevere in solving them
- MP 4 - Model with mathematics

**Structures for Student Learning:**

#### Academic Language Support:
- Vocabulary: caterpillar, butterfly, squirrel, frogs, bunnies
- Sentence frames: There are _____ (animals).

#### Differentiation Strategies:

Students who need it may be given their own set of pictures to manipulate or paste. Also, have tools readily available for use for all students (counters, ten frames, number line, etc.).

#### Participation Structures (group, partners, individual, other):

Partners or Individual
## Lesson Series #2

**Lesson Series Overview:** Students will continue to work with story problems, being given the opportunity to show their thinking using numbers, words, and pictures. Students will be asked to be flexible in thinking about whether their manipulation of materials represents addition or subtraction.

**CCSS-M Standards Addressed:** K.OA.1, K.OA.2

**Time:** 2 - 3 days (2 days allotted, but you may go up to 3 days and take one day off the Milestone task)

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<thead>
<tr>
<th>Lesson Overview - Day 1</th>
<th>Resources</th>
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<tr>
<td><strong>Description of Lesson:</strong></td>
<td><strong>Materials</strong></td>
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</table>
| **Launch:** | ● Addition or subtraction “Quick Look” cards  
  ● “I have, who has…” cards |
| Addition or subtraction “Quick Look” cards. Follow the same process as Lesson Series 1, Days 1-4. | |
| I have, who has? (aka Around the World) | |
| Today’s lesson is a version of “I have, who has...” using a mixture of addition and subtraction problems. There are two sets of cards. Decide which will best meet the needs of your students. There are only eleven cards in each set, so students can be partnered if necessary. | |
| If this is the first time that students are playing “I have, who has...”, it will take a lot of work to get through initially, but with practice it will become a quick activity. | |
| ● Students sit in a circle on the floor.  
  ● Distribute ALL the cards in the deck to members of the group or class.  
  ● Group members place the cards in front of them or hold them so that they can be read.  
  ● Guide students through each step the first time around.  
  ● The card that has the walk light in the corner is the beginning card. Tell the students to look at the large box on the page. Whoever has the walk light will say the phrase “I have ______” (e.g. “I have 5”) then say the phrase at the bottom: “Who has ______?”  
  ● Someone else in the class will have the number just named in the large box on their page. They will say, “I have ______(the number on their page)”, then, “Who has ___ (from the bottom box).”  
  ● The play continues until the class gets to the stop light. The stop light denotes that all of the cards have been read. Play can continue: the red light card question has the green light as its answer.  
  Go through the cards a couple of times so that students get the hang of the game. |
Independent Work Time/Centers:
1) Subtraction Concentration
2) Domino Addition Top-It

Lesson Overview - Day 2

Description of Lesson:
Note: You will need to have a poster of multiple number bonds (this can be the same anchor chart used in lesson series one), with space for equations and a space to draw in a representation of a math model. It is recommended that the chart be laminated so that it can be written on with overhead pens, preferably, or dry erase markers.

Launch:
Begin today by playing, “I have, who has…” (from yesterday’s lesson)

Addition and Subtraction
Students will be solving addition/subtraction problems using the story Ten in The Bed. They will record their solutions using number bonds, equations, and ten frames. For this lesson have students sitting in a circle.

Intro: We’ve been talking a lot about the critters we see in the wild - caterpillars, snails, ladybugs, and other critters. Let’s think about what else we might see in the wild. What types of animals would we see if we went camping in the forest? (Guide students through thinking about the different animals, making sure that at some point they end up on bears).

Tell students that today, they are going to act out a story using linking cubes, and then recording their thinking using pictures, number bonds and equations. Tell students this story is about ten bears in a bed. Ask them, “If I need ten bears to help me act this out, but I don’t have ten bears, can I use linking cubes to help me instead?” Distribute twelve linking cubes per student. Ask, “how many linking cubes should I get out to show this problem? What does each of these linking cubes represent?” As you play the video or read the story, ask students to act it out with you, using their linking cubes.

As you act it out, ask students the following: “How can we show how many bears fell out? How can we represent the number of bears on the floor and the number of bears on the bed?”
Before beginning to record equations, ask students, “Did we add or subtract in this problem? How do you know?” Then, record the first three scenarios of the story on the number bond, with equations and on the ten-frame. As different representations are recorded, ask students to turn and talk with a partner to explain how the representations are similar (ex: “How is the number bond like the equation?”, “How is the number bond like the ten frame?”, or “How is the ten frame like the linking cubes?”) Select a student to share out with the class.

Give students the following scenario: Today, there were 9 bears in the bed and some fell off. There are now 6 in the bed. How many are on the floor? Ask students to record this on their own recording sheet (using three representations - an equation, number bond, and picture). Have available different manipulatives they can use to solve this problem.

Independent Work Time/Centers:
1. Domino Addition Top-It
2. Subtraction Concentration

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<thead>
<tr>
<th>Lesson Overview (Optional Day 3)</th>
<th>Resources</th>
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<tbody>
<tr>
<td><strong>Description of Lesson:</strong></td>
<td><strong>Materials</strong></td>
</tr>
<tr>
<td>Notes:</td>
<td>● I have, who has cards</td>
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<tr>
<td>If you feel your class can use</td>
<td>● Recording sheet</td>
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<tr>
<td>one more day solving</td>
<td>● Pennies (10 real or plastic</td>
</tr>
<tr>
<td>addition/subtraction</td>
<td>pennies for each group)</td>
</tr>
<tr>
<td>problems and recording</td>
<td>● Paper plate and/or cup (1 per</td>
</tr>
<tr>
<td>them, then use this day.</td>
<td>pair)</td>
</tr>
<tr>
<td>If you feel they are ready</td>
<td>● Penny Plate/Cup directions</td>
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<td>to move on, then begin the</td>
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<tr>
<td>Milestone Task.</td>
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Launch:
Play “I have, who has…” as outlined in Lesson Series 2, Day 1.

Penny Plate or Penny Cup
Penny Plate gives students a chance to work with missing addends. Play the game against the class a few times, then let students pair up and play against one another. You may want to have the students practice with one another without a score sheet.

Independent Work Time/Centers:
1) Choose from any of the activities already played
# Milestone Task

## Classroom Helpers

### What will students do?

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<tr>
<th>Mathematics Objectives and Standards</th>
<th>Framing Student Experience</th>
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<tbody>
<tr>
<td><strong>Math Objectives:</strong></td>
<td><strong>Note:</strong> There are two days to complete this.</td>
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<tr>
<td>● Students solve addition and subtraction situations</td>
<td><strong>Before beginning the task, you will need (to):</strong></td>
</tr>
<tr>
<td>● Students represent their thinking through pictures, numbers and words.</td>
<td>● Cut out the images provided and put tape or magnets on the backs to act out the task. You'll also need to have 12 pencils ready (6 of them should be sharpened).</td>
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**CCSS-M Standards Addressed:**
- K.OA.1
- K.OA.2

**Potential Misconceptions**
- Students may have trouble recording solutions and may confuse how to write the equations properly.

**Launch:**
Act out each of the parts of the task with the students. Clip Images are available for you to use, but you'll need to cut them out and either place magnets on the back or put tape up on the back to help place objects. For example, as you read “the 4 tambourines”, ask a student to come and put 4 tambourines on the board, etc.

**During:**
Say: We used pictures of objects to help us act out the problem. Now, what tools do you think you might use to help you solve this problem? You will need to show your thinking on your paper.

**Closure/Extension:**
If there is time, have students play any of the games from this unit or the last unit.
### Classroom Helpers

**How will students do this?**

| Focus Standards for Mathematical Practice: |
| MP1 - make sense of problems and persevere in solving them |
| MP4 - model with mathematics |

**Structures for Student Learning:**

**Academic Language Support:**

- Vocabulary: “Each bowl” (this term can be confusing for students and may need to be shown what ‘each bowl’ means.

- Sentence frames: They need ______. There are ______ all together.

**Differentiation Strategies:**

- Small group setting, may want to give cut outs of each of the objects for students to paste to show their thinking. This may be used as a way to model the problem and a scaffold for those who are unable to transfer to a representational model.

- Help guide students to recording their own thinking.

**Participation Structures (group, partners, individual, other):**

- This task can be done in either partners or small group (If you take two days, half of the class can go on the first day and half on the second day).