


## Japanese Elementary Mathematics (JEM) Summer Institute

Teacher: Bill Jackson

Grade 1: 

Unit: Calculation of Three Numbers

### Relationship of Unit to CCSS-m Content Standards


- 1.OA.A.2 Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

Date	Goals	Lesson Description
8/5	Students will review reading and writing numbers, and composition of numbers within 20.	<ol style="list-style-type: none"><li>1. Reading numbers<ol style="list-style-type: none"><li>a. Display number card to students and let them read it.</li><li>b. Have students line up cards on desk and pick the card corresponding to the number the teacher says.</li></ol></li><li>2. Writing numbers<ol style="list-style-type: none"><li>a. Having cards stacked face down, students flip over one card at a time and write down the number in their notebooks.</li></ol></li><li>3. Composing and decomposing numbers<ol style="list-style-type: none"><li>a. Place 5 counters in counter box. Play game to guess how many counters are in each side of the box.</li><li>b. Repeat with 6.</li></ol></li><li>4. Show 10 and a number within 10 (e.g. 10 and 7). Have students find the numeral card that this makes (e.g. 17).</li></ol>
8/6	Students will review addition and subtraction within 10.	<ol style="list-style-type: none"><li>1. Composing and decomposing numbers<ol style="list-style-type: none"><li>a. Place 7 counters in counter box. Play game to guess how many counters are in each side of the box.</li></ol></li><li>2. There are 5 rabbits riding in the bus. 2 more rabbits get in. How many rabbits are riding altogether?<ol style="list-style-type: none"><li>a. Substitute counting blocks for rabbits.</li><li>b. Think on your own and determine the correct math sentence.</li><li>c. Think about how to calculate.</li></ol></li><li>3. There are 8 rabbits riding together. 4 rabbits get out. How many rabbits are left riding in the bus?<ol style="list-style-type: none"><li>a. Substitute counting blocks for rabbits.</li><li>b. Think on your own and determine the correct math sentence.</li></ol></li></ol>

		<p>c. Think about how to calculate.</p> <p>4. Practice problems</p>
8/7	Students understand and calculate addition math sentences that have an initial quantity (augend) and two addends.	<p>1. Composing and decomposing numbers</p> <p>a. Teacher shows a number card from 1 to 8. How many more do we need to make 9?</p> <p>b. How many more do we need to make 10?</p> <p>2. There are 3 cats riding together. 2 cats get in. 4 more cats get in. How many cats are there altogether?</p> <p>a. Substitute counting blocks for cats.</p> <p>b. Think on your own and determine the correct math sentence.</p> <p>c. Think about how to calculate <math>3 + 2 + 4</math>.</p> <p>3. Practice problems</p> <p>a. <math>2 + 4 + 1</math>, <math>9 + 1 + 3</math>, <math>4 + 6 + 2</math></p>
8/8	Same as above	<p>1. Composing and decomposing numbers</p> <p>a. Have students line up number cards from 1 to 10. Say a number and have them pick two cards that will sum to that number.</p> <p>b. Teacher shows a card and says a number. Students quickly pick up a card that will sum to the spoken number.</p> <p>2. Practice addition calculations involving three numbers using counting blocks.</p> <p>a. Addition of three numbers where the sum is 10 or less.</p> <p>b. Addition of three numbers where the two addends add up to 10.</p>
8/9	Students understand the meaning of subtraction math sentences with three numbers and calculate to solve these math sentences.	<p>1. Composing and decomposing numbers</p> <p>a. Which card and which card will make a difference of 1 (2, 3, ...)?</p> <p>b. Students use number or dot cards to show.</p> <p>2. There are 9 cats riding together. 1 cat gets out. 3 more get out. How many cats are left riding in the car?</p> <p>a. Substitute counting blocks for cats.</p> <p>b. Think on your own and determine the correct math sentence.</p> <p>c. Think about how to calculate <math>9 - 1 - 3</math>.</p> <p>3. Practice problems</p> <p>a. <math>9 - 3 - 4</math>, <math>12 - 2 - 1</math>, <math>13 - 3 - 6</math></p>

Introductory Lesson  
Calculation of Three Numbers

Goals of Lesson: Students will review reading and writing numbers, and composition of numbers within 10.

Student Activities, Teacher's Questions and Anticipated Student Reactions	Teacher Support and Things to Remember	Method of Evaluation
<p>1. Reading numbers</p> <p>Students line up cards on desk and pick the card corresponding to the number the teacher says.</p>	<p>Display number card to students and let them read it.</p>	
<p>2. Writing numbers</p> <p>Having cards stacked face down, students flip over one card at a time and write down the number in their notebooks.</p>	<p>Show students how to write the numbers neatly using the grid.</p>	
<p>3. Composing and decomposing numbers</p>  <p>Place 5 counters in counter box. Play game to guess how many counters are in each side of the box.</p> <p>Repeat with 6.</p>	<p>Demonstrate how to play the game.</p>	

## First Grade Mathematics Lesson

Bill Jackson

Title of Lesson: reviewing Addition and Subtraction within 10

Goal of Lesson: To review addition and subtraction within 10.

Relationship of Lesson to CCSS-m:

- 1.OA.C.5 Relate counting to addition and subtraction.
- 1.OA.C.6 Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten; decomposing a number leading to a ten; using the relationship between addition and subtraction; and creating equivalent but easier or known sums.

Rationale for Teaching this Lesson:

The incoming first grade students at [REDACTED] learned how to add and subtract within 10 in kindergarten. Yesterday, I was able to meet the students and assess their understanding of decomposition of composition of numbers, writing numerals, and addition and subtraction within 10. Based on my observations, students are at very different levels of understanding. Most students need reinforcement so I will try to build these skills into my lessons. In this lesson, students will play a game to remind them about how numbers within 10 are composed and decomposed (number combinations). Then, I would like to help the students think about problem situations involving addition and subtraction; represent the situations using math sentences and number blocks; and solve the problems. At the end of the lesson, students will practice what they have learned by solving several problems. These skills will be very important for calculation of three numbers.

Student Activities, Teacher's Questions and Anticipated Student Reactions	Teacher Support and Things to Remember	Method of Evaluation
1. Introduction (10 min.)  Students play shaker box game. <ul style="list-style-type: none"><li>• Place 7 counters in counter box. Play game to guess how many counters are in each side of the box.</li></ul>	Show combinations of 7 on board with counters.  Have shaker boxes prepared for students.  Remind them how to play the game.	Are students able to recall their knowledge of number combinations to guess the number of counters that are hidden?
2. Development (15 min.)  <b>There are 5 rabbits riding on the bus. 2 more rabbits get in. How many rabbits are riding altogether?</b>	Post picture of bus on board.  Use magnetic rabbits to illustrate story and discuss the situation with the students.	Do students understand the problem?  Are they excited to try to solve

<ul style="list-style-type: none"> <li>Think on your own and determine the correct math sentence.</li> <li>Use the blocks to think about how to calculate <math>5 + 2</math>.</li> </ul> <p><u>Anticipated Solutions:</u></p> <ol style="list-style-type: none"> <li>Represent with blocks and count one by one (1, 2, 3.... 7)</li> <li>Count on (5... 6, 7).</li> <li>Use their knowledge of number combinations. ("I knew that 5 and 2 make 7.")</li> </ol>	<p>Have students substitute counting blocks for rabbits.</p> <p>Encourage them to use the blocks to think about the math sentence.</p> <p>Make sure they are writing their math sentences neatly in their notebooks.</p>	<p>the problem?</p> <p>Can they represent the story using number blocks and math sentences?</p>
<p>3. Extension (10 min.)</p> <p><b>There are 8 rabbits riding on the bus. 4 rabbits get out. How many rabbits are left riding on the bus?</b></p> <ul style="list-style-type: none"> <li>How is this different from the first problem?</li> <li>Think on your own and determine the correct math sentence.</li> <li>Use the blocks to think about how to calculate <math>8 - 4</math>.</li> </ul> <p><u>Anticipated Solutions:</u></p> <ol style="list-style-type: none"> <li>Represent with the blocks, take away, and count the remainder (4).</li> <li>Count back (8... 7, 6, 5, 4).</li> <li>Use knowledge of number combinations. ("I knew that 4 and 4 make 8, so <math>8 - 4 = 4</math>.")</li> <li>Use doubles facts (<math>4 + 4 = 8</math>, so <math>8 - 4 = 4</math>).</li> <li>Error: <math>8 + 4</math></li> </ol>	<p>Use magnetic rabbits to illustrate story and discuss how the situation is different from the first problem.</p> <p>Have students substitute counting blocks for rabbits and write a math sentence in their notebooks.</p> <p>If students write the math sentence as <math>8 + 4</math>, help them see that the number of rabbits in the bus is getting smaller, not bigger.</p>	<p>Are students able to represent the story as subtraction?</p> <p>Can they explain their ideas and understand the ideas of their classmates?</p>
<p>4. Consolidation (10 min).</p> <p>Practice problems</p> <ul style="list-style-type: none"> <li>Addition: <math>4 + 5</math>, <math>6 + 4</math>, <math>3 + 7</math>, <math>10 + 3</math></li> <li>Subtraction: <math>7 - 5</math>, <math>9 - 3</math>, <math>10 - 4</math>, <math>13 - 3</math></li> </ul> <p>Flash card drill (addition and subtraction within 10)</p>	<p>Write problems on the board and have students write them in notebook.</p> <p>Encourage students who are struggling to use the number blocks.</p>	<p>Are students able to get the answers correct?</p>

## First Grade Mathematics Lesson

Bill Jackson

Title of Lesson: Addition of Three Numbers

Goal of Lesson: To understand and calculate addition math sentences that have an initial quantity (augend) and two addends.

Relationship of Lesson to CCSS-m:

- 1.OA.A.2 Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

Rationale for Teaching this Lesson:

In yesterday's lesson, students used math sentences and number blocks to represent addition and subtraction situations. Some students were able to represent these situations accurately but others are struggling. Also, although many students are able to use the number blocks to represent and even solve the problem, they were not using them as tools to justify their reasoning and think about the validity of their own and their classmates' solutions. Therefore, in today's lesson I would like to help students to use the number blocks as tools to better support their thinking.

At the beginning of the lesson, I will ask students to practice what they learned the previous day by writing math sentences, representing them with number blocks, and using the number blocks to assess their own understanding. This skill will be very important for them to more complex problem situations such as addition of three numbers. Furthermore, I would like to continue to help students to develop a productive disposition for mathematical problem solving. This includes:

- Being happy and excited to engage in a mathematics lesson.
- Writing numbers neatly.
- Using a notebook (journal) to record their thinking
- Checking their own solutions and those of their classmates.
- Using manipulatives appropriately, including taking them out and storing them.
- Sharing their ideas using both words and representations.
- Understanding the ideas of their classmates and learning from each other.

At the end of the lesson, I will ask students to play the shaker game to practice composing and decomposing numbers within 10. Initially I had planned to do this at the beginning of the lesson but I changed plans because I feel students need to practice representing their math sentences with number blocks before solving today's problem. Also, towards the end of yesterday's lesson, some students were paying attention less and beginning to get bored. By playing the game at the end of the lesson, I am hoping that students' energy level for engaging in mathematical thinking will be sustained longer.

Student Activities, Teacher's Questions and Anticipated Student Reactions	Teacher Support and Things to Remember	Method of Evaluation
<p>1. Introduction (15 min.)</p> <p>Students will solve various addition and subtraction sentences within 10.</p> <ul style="list-style-type: none"> <li>• <math>6 + 4</math></li> <li>• <math>7 - 5</math></li> <li>• <math>3 + 7</math></li> <li>• <math>10 - 4</math></li> </ul> <p>Students will check their answers with the blocks.</p>	<p>Have students write date in notebooks.</p> <p>Make sure students are using one square per number or sign in notebooks.</p> <p>Make sure students are modeling the math sentences correctly with the blocks and using them to check their answers.</p> <p>Show examples of some students' notebooks so they can see how to organize their ideas more clearly.</p>	<p>Are students able to write the math sentences neatly in their notebooks?</p> <p>Can students model the math sentences with the number blocks?</p>
<p>2. Development (20 min.)</p> <p><u>Today's Problem</u>  <b>There are 3 cats riding together. 2 cats get in. 4 more cats get in. How many cats are there altogether?</b></p> <ul style="list-style-type: none"> <li>• Substitute number blocks for cats.</li> <li>• Think on your own to determine the correct math sentence.</li> </ul> <p><u>Anticipated Solutions:</u></p> <ul style="list-style-type: none"> <li>• Add the amounts using two math sentences (<math>3 + 2 = 5</math>, <math>5 + 4 = 9</math>)</li> <li>• Add using one math sentence (<math>3 + 2 + 4 = 9</math>)</li> <li>• Incorrect math sentence (<math>3 + 2 = 5 + 4 =</math></li> </ul>	<p>Show friend (tiger/cat).</p> <p>Post first two pictures of cats, one at a time.</p> <p>After posting the first two pictures stop and discuss what math sentence shows the situation (<math>3 + 2</math>).</p> <p>Post the third picture.</p> <p>Pass out picture and have students paste in notebooks.</p> <p>Tell the whole story and have students tell the story back to their friend.</p> <p>Encourage students to</p>	<p>Are students eager to solve the problem?</p> <p>Can they model the first part of the problem (<math>3 + 2</math>) with a math sentence and with the number blocks?</p> <p>Are students able to use the number blocks to check their answers?</p>

<p>9)</p> <p><b>Let's think about how to calculate <math>3 + 2 + 4</math>.</b></p> <ul style="list-style-type: none"> <li>• It can be written as one math sentence and solved.</li> <li>• If you write one math sentence you can show what happened in the story easily.</li> <li>• Complete the calculation (<math>3 + 2 + 4 = 9</math>).</li> <li>• Use the number blocks to check your own answer and then draw a flower when you are correct.</li> <li>• Check you friend's answer to make sure they did it correctly.</li> </ul>	<p>use the blocks show the sequence of the story and think about the math sentence.</p> <p>As students present solutions, encourage them to use the large blocks on the board to explain their ideas.</p> <p>If students do not make the error <math>3 + 2 = 5 + 4 = 9</math>, show it after the problem is solved and ask them to explain why it is wrong (the quantities on both sides of the equal sign must be the same).</p>	
<p>3. Consolidation (15 min.)</p> <p>Practice problems</p> <ul style="list-style-type: none"> <li>• <math>2 + 4 + 1</math></li> <li>• <math>9 + 1 + 3</math></li> <li>• <math>4 + 6 + 2</math></li> </ul> <p>Play shaker game (8).</p>	<p>Make sure students have written the math sentence correctly.</p> <p>Encourage students to use number blocks to represent and solve and/or check problem.</p> <p>Have students check their answers.</p> <p>If there is not enough time to solve all three problems only solve one problem and then play the game.</p>	<p>Are students able to write a math sentence involving addition of three numbers correctly and neatly?</p> <p>Are students able to get the correct answer and check using the number blocks?</p> <p>Are students excited and happy to play the game?</p>



## First Grade Mathematics Lesson Plan

Bill Jackson

Title of Lesson: Addition of Three Numbers

Goals of Lesson:

- To review and consolidate students' understanding of the meaning of an addition expression involving three numbers (an augend and two addends).
- To practice addition calculations involving three numbers in which the sum is 10 or less, or in which the first two addends add up to 10.

Relationship of Lesson to CCSS-m:

- 1.OA.A.2 Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

Rationale for Teaching this Lesson:

In yesterday's lesson, students were introduced to expressions involving addition of three numbers for the first time. Students were able to see that a problem involving addition of three numbers can be represented by writing one math sentence but many students are still unclear about the meaning of this math sentence. In today's lesson, I will show a situation involving addition of three numbers using blocks and then ask students to write the math sentence. Then, I would like students to see that they can calculate the answer by adding the first two numbers and then adding the third number to the sum of the first two. In order to help the students to go beyond counting, I will ask them to find the answer by calculation first without using the blocks and then see if they would like to use the blocks to check their answers. If students count on their fingers or with the blocks to find the solution, I will not discourage them as this is the stage where they are at present and they may need time in order to see they need to go beyond counting. I will provide opportunities in each lesson, however, for these students to go beyond counting by playing games involving composition and decomposition of numbers.

<b>Student Activities, Teacher's Questions and Anticipated Student Reactions</b>	<b>Teacher Support and Things to Remember</b>	<b>Method of Evaluation</b>
1. Introduction (10 min.)  <b>Let's play the shaker game.</b>	Have students play the shaker game with 6 and then 7 flower counters.	Are students able to find many different combinations that add together to make the given number?
2. Development (20 min.)	Remind them of yesterday's cat story and	Do students' stories represent the math

<p><b>I am going to show you a math sentence.</b></p> <ul style="list-style-type: none"> <li>Teacher shows <math>2 + 4 + 1</math> using blocks only (put all blocks together).</li> </ul> <p><b>Can you write the math sentence</b></p> <ul style="list-style-type: none"> <li>Can you show us again?</li> <li>It's <math>2 + 4 + 1</math>.</li> </ul> <p><b>Let's think about how to calculate <math>2 + 4 + 1</math>.</b></p> <p><u>Anticipated reactions:</u></p> <ul style="list-style-type: none"> <li><math>2 + 4 = 6 + 1 = 7</math> (incorrect math sentence)</li> <li><math>2 + 4 + 1 = 7</math> (by counting blocks one by one)</li> <li><math>2 + 4 + 1 = 7</math> (by adding <math>2 + 4</math> to get 6 and <math>6 + 1</math> to get 7)</li> </ul>	<p>math sentence from previous lesson (<math>3 + 2 + 4 = 9</math>).</p> <p>Move blocks on the board to show <math>2 + 4 + 1</math>, but do not tell them the numbers.</p> <p>If students ask to see it again, show them another time.</p> <p>Ask students to calculate using numbers and then see if they would like to use the blocks.</p> <p>Encourage students who are counting to add the numbers instead.</p> <p>Encourage students to use the number blocks to justify methods.</p>	<p>sentences correctly?</p> <p>Are students able to tell stories for the different math sentences?</p> <p>Can students use number blocks to represent the math sentence?</p> <p>Are students able to calculate by adding the first two numbers, and then adding the third number instead of counting?</p>
<p>3. Extension (15 min.)</p> <p>Can you guess this math sentence?</p> <ul style="list-style-type: none"> <li>Show <math>9 + 1 + 3</math> using blocks only.</li> </ul>	<p>Encourage students to think about whether they have enough blocks or not and to use the other blocks in the case in they do not have enough.</p>	<p>Can students apply what they have learned?</p> <p>Are students able to solve a problem where the answer is beyond 10?</p>
<p>4. Consolidation (10 min.)</p> <p>Practice problems (if there is time).</p> <ul style="list-style-type: none"> <li><math>5 + 2 + 3</math></li> <li><math>8 + 2 + 4</math></li> <li><math>7 + 3 + 2</math></li> </ul>	<p>If there is not enough time, stop lesson and summarize.</p> <p>Check for understanding and help students who are struggling.</p>	<p>Are students able to solve more problems?</p>

Title of Lesson: Subtraction with Three Numbers

Goals of Lesson: To understand the meaning of subtraction math sentences with three numbers (a minuend and two subtrahends), and calculate to solve these math sentences.

Relationship of Lesson to CCSS-m:

- 1.OA.A.2 Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- 1.OA.A.6 Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g.,  $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$ ); decomposing a number leading to a ten (e.g.,  $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$ ); using the relationship between addition and subtraction (e.g., knowing that  $8 + 4 = 12$ , one knows  $12 - 8 = 4$ ); and creating equivalent but easier or known sums (e.g., adding  $6 + 7$  by creating the known equivalent  $6 + 6 + 1 = 12 + 1 = 13$ ).

Rationale for Teaching this Lesson:

Throughout the teaching of this unit on calculation involving three numbers I have been trying to help students develop the habits of mind necessary to engage effectively in problem-based lessons. The CCSS-m standards for mathematical practice refer to these dispositions:

**Make sense of problems and persevere in solving them.**

Mathematically proficient students start by *explaining to themselves the meaning of a problem ...*, *analyze givens, constraints, relationships, and goals ...*, *make conjectures ...*, (and) *consider analogous problems .... They monitor and evaluate their progress and change course if necessary.*

**Reason abstractly and quantitatively.**

Mathematically proficient students *make sense of quantities and their relationships in problem situations*. They bring two complementary abilities to bear on problems... : *the ability to decontextualize—to abstract a given situation and represent it symbolically* and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and *the ability to contextualize, to pause as needed during the manipulation process* in order to probe into the referents for the symbols involved. *Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and*

knowing and flexibly using different properties of operations and objects.

**Construct viable arguments and critique the reasoning of others**

Mathematically proficient students ... *use stated assumptions, ... and previously established results in constructing arguments. They ... explore the truth of their conjectures ..., analyze situations ..., recognize and use counterexamples..., justify their conclusions to others, and respond to the arguments of others.*

**Model with mathematics**

Mathematically proficient students can apply the mathematics ... to solve problems arising in everyday life, society, and the workplace. *In early grades, this might be as simple as writing an ... equation to describe a situation.*

**Use appropriate tools strategically**

Mathematically proficient students *consider the available tools when solving a mathematical problem ..., (and) are sufficiently familiar with tools appropriate ... to make sound decisions about when each of these tools might be helpful....*

**Attend to precision**

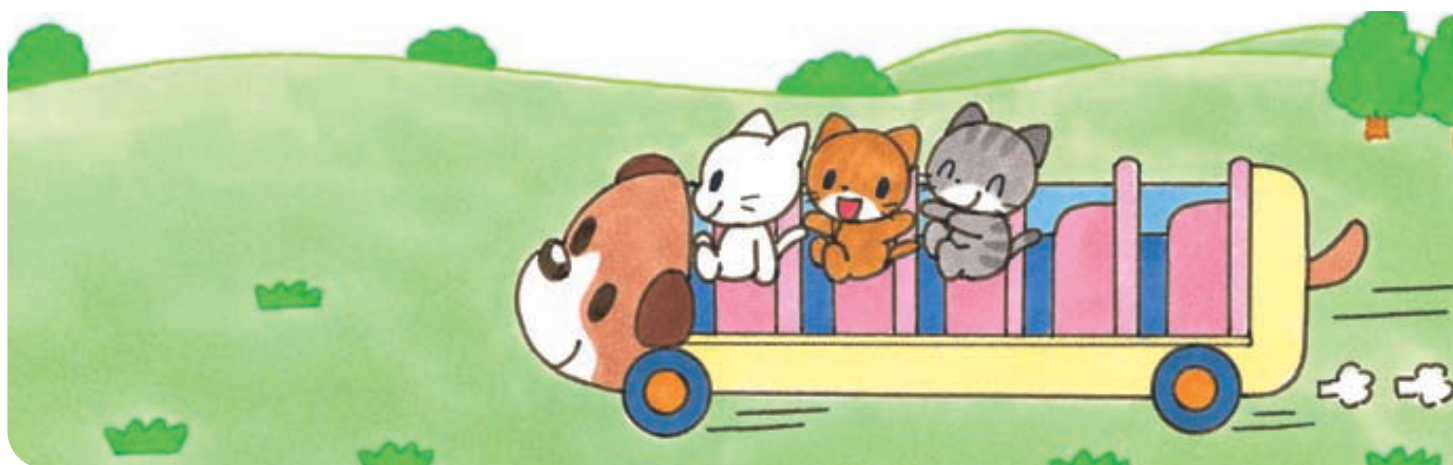
Mathematically proficient students try to *communicate precisely to others ..., try to use clear definitions in discussion with others and in their own reasoning ..., (and) state the meaning of the symbols they choose....*

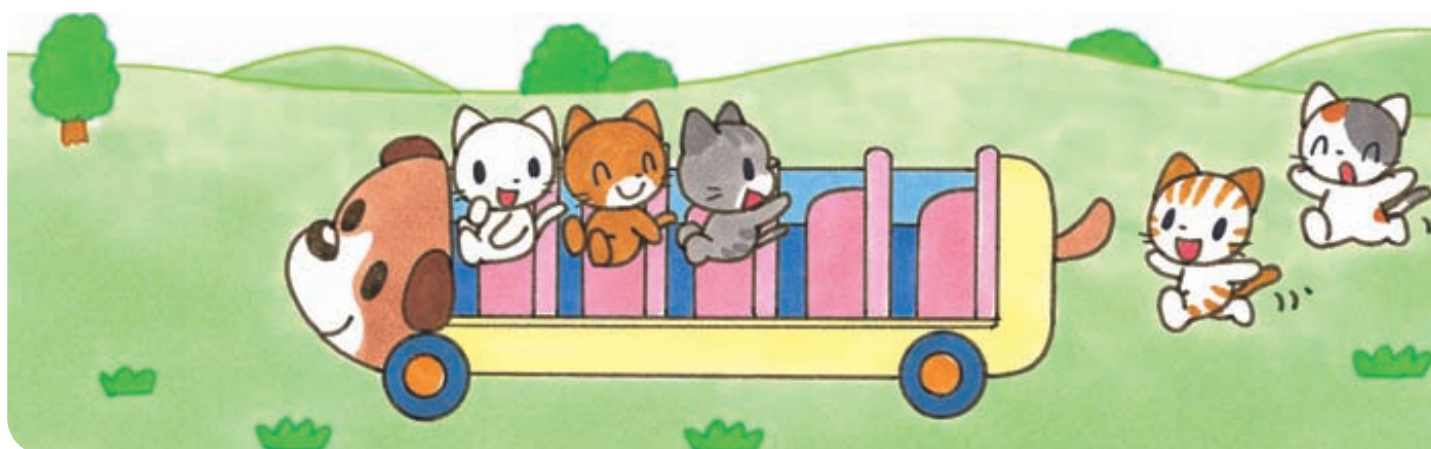
These mathematical habits of mind must be carefully developed and teachers must give due diligence to provide students the opportunities to develop both naturally and systematically. Although calculation fluency is important, if teachers place too much emphasis on calculation and getting the correct answer, students will miss the bigger ideas in mathematics, such as seeing mathematics as a language to express mathematical thinking.

In today's lesson, I would like to continue to foster these dispositions by giving students a problem involving subtraction with three numbers (a minuend and two subtrahends). I will begin the lesson by reviewing the problem situation and mathematical expression for adding three numbers. Then I will pose a problem in a similar context (cat riding in a car) that involves subtraction with three numbers. I would like students to be able to understand the problem situation, compare and contrast it with the problem situations they have seen before, and express the problem situation succinctly using a math sentence. Furthermore, I would like them to be able to justify their math sentences by using both verbal arguments and mathematical tools (number blocks). In today's lesson I would like to deemphasize the solution to the problem and focus mainly on writing mathematical expressions to represent problem situations.

Student Activities, Teacher's Questions and Anticipated Student Reactions	Teacher Support and Things to Remember	Method of Evaluation
<p>1. Introduction (5 min.)</p> <p><b>Let's review the math sentence for adding with three numbers.</b></p> <p><b>Why did we write the math sentence this way?</b></p> <ul style="list-style-type: none"> <li>To show that cats are getting in the two times.</li> <li>To show 2 cats are getting in and then 4 more cats are getting in.</li> </ul>	<p>Show cats problem from previous lessons on first board (<math>3 + 2 + 4</math>). Do not write the answer.</p> <p>Illustrate <math>3 + 2 + 4</math> on the board with blocks and arrows.</p>	<p>Do students understand why the math sentence uses addition twice?</p>
<p>2. Development (20 min.)</p> <p><b>Let's solve another problem about cats.</b></p> <p>There are 9 cats riding together. 1 cat gets out. 3 more get out.</p> <p><b>How is this story different from the story we solved before?</b></p> <ul style="list-style-type: none"> <li>The cats are getting out of the car, not getting into the car.</li> <li>It is subtraction (take away).</li> <li>There are going to be fewer cats in the end.</li> </ul> <p><b>Think on your own and determine the correct math sentence.</b></p> <p><u>Anticipated Solutions:</u></p> <p>a) <math>9 - 1 - 3</math></p> <p>b) <math>9 - 1 = 8, 8 - 3 = 5</math></p>	<p>Use second board to pose the problem, one step at a time.</p> <p>Give students pictures of the cat story to paste in their notebooks.</p> <p>Have students share their math sentences.</p> <p>Substitute counting blocks for cats.</p> <p>Ask students to think about and write a math sentence.</p> <p>If students find the solution, acknowledge it but do not emphasize the calculation process.</p> <p>Ask students to use the blocks to justify their math sentences.</p>	<p>Are students able to use the blocks to justify their math sentences?</p> <p>Are students listening to each other and learning from each other as they present their ideas to the class?</p> <p>Are students who made errors in their math sentences able to correct themselves?</p>

<p>c) <math>9 + 1 - 3</math> (error)  d) <math>9 + 1 + 3</math> (error)</p>	<p>Use the two boards with the different situations to help students understand the differences between the math sentences for addition and subtraction of 3 numbers.</p> <p>Help students to understand that this situation can be shown with one math sentence (<math>9 - 1 - 3</math>).</p>	
<p>3. Extension (15 min.)</p> <p><b>Let's think about other stories.</b></p> <p>There are 9 cats riding together. 3 cats get out. 4 more get out.</p> <p>There are 9 cats riding together. 6 cats get out. 2 more get out.</p>	<p>Ask students to write the correct math sentence.</p> <p>Write their math sentences on the board but do not write the answer.</p> <p>Ask students to use the blocks to justify their math sentences.</p>	<p>Can students represent other situations that involve two subtractions with math sentences?</p> <p>Can students justify their thinking by using the blocks?</p>
<p>4. Practice (10 min.)</p> <p>Play shaker game.</p>	<p>Tell them to play the game with 8, then 9, then 10.</p>	<p>Are students having fun playing the game?</p> <p>Are they deepening their understanding of two numbers together?</p>















## Worksheet for Lesson 2

Name \_\_\_\_\_

$$4 + 5$$

$$6 + 4$$

$$10 + 3$$

$$8 + 2$$

$$7 - 5$$

$$9 - 3$$

$$10 - 4$$

$$16 - 6$$

Name \_\_\_\_\_

$$3 + 6$$

$$10 - 7$$

$$2 + 7$$

$$0 + 9$$

$$7 - 0$$

$$10 + 5$$

$$8 - 5$$

$$14 - 4$$