

SFUSD Math Core Curriculum Grade 1

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Unit 1.4: Subtraction within 20

Big Idea

Different situations suggest different subtraction strategies, such as counting back, thinking addition, or decomposing to ten. Different situations can result in the same difference. The expressions that represent situations with the same difference are equal. This relationship can be recorded with an equal sign.

Unit Objectives

- Students represent and solve problems involving subtraction.
- Students subtract within 20 using the counting back, thinking addition, and decomposing to 10 strategies.
- Students use the number line, ten frame, and tape diagram to represent subtraction problems.
- Students begin to develop an understanding of the connection between addition and subtraction.
- Students understand the meaning of the equals and subtraction symbols.
- Students work toward fluency with subtraction facts within 10.

Unit Description

Students develop a deeper understanding of subtraction and its connection with addition and are introduced to different strategies and visual models. Students use tape diagrams to represent subtraction problems and number lines and ten frames to solve them. Students are introduced to unknown addend problems through the “Think Addition” strategy. Students solve subtraction number stories, determining the best strategy based on the numbers in the story.

CCSS-M Content Standards

Operations and Algebraic Thinking

Represent and solve problems involving addition and subtraction.

1.OA.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. (See Table 1 in the glossary of the CCSSM for further description of word problem situations.)

Understand and apply properties of operations and the relationship between addition and subtraction.

1.OA.4 Understand subtraction as an unknown-addend problem. *For example, subtract $10-8$ by finding the number that makes 10 when added to 8.*

Add and subtract within 20.

1.OA.5 Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).

1.OA.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 $6 + 6 + 1 = 12 + 1 = 13$).

Work with addition and subtraction equations.

1.OA.7 Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.*

Progression of Mathematical Ideas

Prior Supporting Mathematics	Current Essential Mathematics	Future Mathematics
In Kindergarten, students began to develop an understanding of subtraction as <i>taking apart</i> and <i>taking from</i> . They subtracted within 10 and represented their thinking in a variety of ways. They developed fluency with subtraction within 5.	<p>Students build on their knowledge of subtraction from Kindergarten and addition from Units 1.1 and 1.3 to subtract within 20. This is the first time that subtraction is formally addressed in Grade 1. The focus of this unit is building a set of strategies and appropriate representations of those strategies.</p> <p>Students are introduced to comparison situations for the first time, with difference unknown problems. The numbers are kept between 0 and 10 during this introduction.</p>	<p>Students will further develop their understanding of subtraction in Units 1.6, 1.8, 1.9, and 1.11.</p> <p>In Unit 1.6, students are introduced to change unknown and start unknown situations with Take From problem types. They are introduced to bigger and smaller unknowns in comparison problems.</p> <p>In Unit 1.8, students focus on Compare problems and are introduced to all the linguistic versions. They will also continue to practice Take From problems with unknowns in all positions.</p> <p>In Unit 1.9, students will work with subtraction of numbers larger than 20 through place value understanding (base-10).</p> <p>In Unit 1.11, students write their own subtraction problems.</p> <p>In Grade 2, students use all the problem types with two-step problems.</p>

Subtraction Situations

Unit 1.4 concentrates on the following (highlighted) **Common Subtraction Situations**, from the Glossary of the Common Core State Standards - Math.

	Result Unknown	Change Unknown	Start Unknown
Take From	Five apples were on the table. I ate two apples. How many apples are on the table now? $5 - 2 = ?$	Five apples were on the table. I ate some apples. Then there were three apples. How many apples did I eat? $5 - ? = 3$	Some apples were on the table. I ate two apples. Then there were three apples. How many apples were on the table before? $? - 2 = 3$
Compare³	("How many more?" version): Lucy has two apples. Julie has five apples. How many more apples does Julie have than Lucy?	(Version with "more"): Julie has three more apples than Lucy. Lucy has two apples. How many apples does Julie have?	(Version with "fewer"): Lucy has 3 fewer apples than Julie. Julie has five apples. How many apples does Lucy have?
	("How many fewer?" version): Lucy has two apples. Julie has five apples. How many fewer apples does Lucy have than Julie? $2 + ? = 5$, $5 - 2 = ?$	(Version with "fewer"): Lucy has 3 fewer apples than Julie. Lucy has two apples. How many apples does Julie have? $2 + 3 = ?$, $3 + 2 = ?$	(Version with "more"): Julie has three more apples than Lucy. Julie has five apples. How many apples does Lucy have? $5 - 3 = ?$, $? + 3 = 5$

³ For the Bigger Unknown or Smaller Unknown situations, one version directs the correct operation (the version using more for the bigger unknown and using less for the smaller unknown). The other versions are more difficult.

Unit Design



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?*

Unit Overview (14 days)

	Days	Description	Core Mathematics
Entry Task	1	Students solve a subtraction word problem and investigate the differences between addition and subtraction.	Mathematical situations that require the subtracting of small quantities can be done by counting back. Pictures and equations can be used to represent the situation.
Lesson Series 1	4	Students investigate the subtraction strategies of counting back on the number line and decomposition to 10 on a double ten frame with cards and dice.	Subtracting small quantities can be done by counting back. Counting back can be demonstrated on a number line. Decomposing to make ten can make subtraction easier. The decomposition can be seen with a ten frame.
Apprentice Task	1	Students solve a subtraction word problem using a double ten frame or a number line.	The numbers in a situation can determine which strategy to use for a solution. A number line can represent many strategies.
Lesson Series 2	3	Students investigate subtraction as the inverse of addition by using the Think Addition strategy with doubles and doubles plus one. They use a tape diagram to represent the situations.	Subtraction is the inverse of addition. Knowledge of doubles and doubles +1 can be used with addition to solve subtraction situations. A tape diagram can represent the situation.
Expert Task	1	Students determine how many cookies the Cookie Monster ate.	Real-life problems can be solved with subtraction.
Lesson Series 3	3	Students are introduced to comparison situations. They use a tape diagram to represent the problem and counters or known facts to solve it.	Quantities can be compared and the comparison can be represented with a tape diagram and an equation. Subtraction can be used to solve the problem.
Milestone Task	1	Students solve a word problem involving subtraction and decide which strategy to use to solve it.	Some real-life situations can be solved with subtraction. The strategy used to solve the problem depends on the numbers involved.

Resources

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









Blackline Masters		Materials & Manipulatives	
Math Talks	Dot Talks BLM	Data Routine Number of Days in School (Spanish) Counting Routine 1.4 Dot Talks	
Learning Stations S = Spanish C = Chinese	Pop! Cards S C Geoboard Shape Cards BLM Origami Fox BLM S C Journal Prompts BLM S C	Number cards Counters Container Number line Geoboards with rubber bands Dominoes	Math notebooks Ball 10 cups Origami paper or paper squares Computer

	Student Pages	Blackline Masters	Materials & Manipulatives	Slides
Entry Task	Unit 1.4 Family Letter S C Kathy's Books S C	Kathy's Books Three Read BLM S C Kathy's Books Three Read Picture BLM	Math tools Manipulatives	Seesaw Counting Back (Spanish)
Lesson Series 1		Ten Frame/Double Ten Frame BLM (from Unit 1.3) Number Lines 0 to 20 BLM (from Unit 1.3) or 0-20 Linking Cube Number Line BLM	Labeled dice Counters Number cards Math notebooks Chart paper	LS 1 Day 3 Seesaw Lesson 2: Making a 10 (Spanish) LS1 Dy 4 Seesaw Lesson 3 (Spanish)
Apprentice Task	Kites S C	Kites Three Read BLM S C Kites Three Read Picture BLM Number line or optional 0-20 Linking Cube Number Line BLM Double ten frame	Linking cubes Counters	Seesaw Jada's Books (Spanish)
Lesson Series 2	Day 2 Tape Diagrams S C Day 3 Tape Diagrams S C	Doubles Pictures BLM (From Unit 1.3)	Linking cubes Number cards 0-20 Math notebooks Subtraction Strategies anchor chart	LS 2 Day 1&2 Seesaw Doubles (Spanish) LS2 Day 3 Doubles +1 (Spanish)
Expert Task		Cookies in a Whole Package BLM Cookies Left BLM	Three Act Task Video Optional	Seesaw Lesson 7 - Cookies

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		Cookies Eaten BLM	Instructional Video	(Spanish)
Lesson Series 3	Cookie Comparisons   Number Comparisons   Number Comparisons with Equations  	Cookies Left BLM (from Expert Task)	Number cards 0–10 Counters Math notebooks	LS3 Day1 Seesaw Lesson 8 - Cookie Comparison (Spanish) LS3 Day 2&3 Seesaw Lesson 9 - Favorite Cookie Comparison (Spanish)
Milestone Task		Pickles BLM   Pickles Three Read BLM   Pickles Three Read Picture BLM	Counters Linking cubes Number line Double ten frame	Seesaw Milestone (Spanish)

Math Talks Bank

Below are the Math Talks suggested for this unit. These Math Talks are also listed with each lesson. Math Talks should happen 3 to 5 times a week for 10–15 minutes each.

See **Digital Math Teaching Toolkit** section on **Math Talks** for more information (<http://www.sfusdmath.org/math-talks.html>).

Re-Engage with Addition

Expression Talk

Objective: Students apply the count on, doubles, and make 10 strategies to determine the total quantity.

Description: These Math Talks are designed to help students become more flexible in how they compose, decompose, and recompose numbers to determine the total quantity. Students are mentally solving the problems. Expressions should be written horizontally and not vertically. These Math Talks may or may not be recorded.

Suggested Math Talks:

Question: What is ____? What strategy did you use?

Set #1	7 + 3	6 + 3	8 + 3	Set #5	6 + 6	6 + 7	6 + 8
Set #2	5 + 5	5 + 6	6 + 5	Set #6	8 + 1	8 + 2	9 + 2
Set #3	9 + 1	1 + 9	9 + 2	Set #7	4 + 4	5 + 4	4 + 5
Set #4	4 + 6	5 + 6	4 + 7				

Anticipated Student Responses:

$7 + 3$

"I know $7 + 3$ is ten. I found it on the Combinations to 10 anchor chart."

"I counted on. I started with 7 and then said, 8, 9, 10. So I know it's 10."

"I imagined a number line. I started at 7 and then jumped 3 times and I got to 10."

$6 + 3$

"Since $7 + 3$ is 10, the $6 + 3$ is one less, so it's 9."

"I know $7 + 3$ is 10. 6 is 1 less than 7, so I took one away from 10 and that's 9."

"I counted out 6 fingers, then I counted on 3 more, 7, 8, 9."

$8 + 3$

"Well, $7 + 3$ is ten, so $8 + 3$ is 11."

" $8 + 2$ is 10. 3 is 1 more than 2, so it's 11."

"I counted on from 8. I said, 8 9, 10, 11."

Engage with Current Content

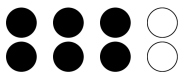


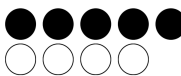

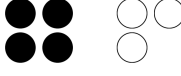

Addition or Subtraction Dot Talk

Objective: Students use the relationship between addition and subtraction to determine the sum or difference represented by the dots.

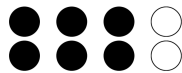
Description: These Math Talks are designed to help students become familiar with three related whole numbers. Students will see that parts can be added to find the total, or a part can be subtracted from the total to find one of the parts.

Suggested Math Talks:

Question: What do you see? What equation would match the picture? Could a subtraction equation match the picture?

Dot Talk 1		Dot Talk 4		Math Talk 7	
Dot Talk 2		Dot Talk 5			
Dot Talk 3		Dot Talk 6			

Anticipated Student Responses:



There are a few examples of how students may see the dot pattern above and explain their thinking. Recording may include notations on the image and addition and subtraction equations.

<p>"I counted 6 black dots and 2 more white dots. That's 8 altogether." (How did you count it?) Equation: $1+1+1+1+1+1+1+1 = 8$</p>	<p>"I saw 3 black dots on the top and 3 on the bottom. Then 2 more white dots." Equation: $3 + 3 + 2 = 8$</p>	<p>"I saw 4 on the top and 4 on the bottom and I added them to get 8 But 2 of the dots are white so I took them away to get 6." Equations: $4 + 4 = 8$ $8 - 2 = 6$</p>
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Possible Summary: How are the black dots and white dots related? What are the parts? What is the whole?

Resources: [1.4 Dot Talks](#)

Daily Routines

Below are the Daily Routines suggested for this unit. Routines should take no more than 5–10 minutes per day. They need not be connected to math time and may be integrated into other classroom routines



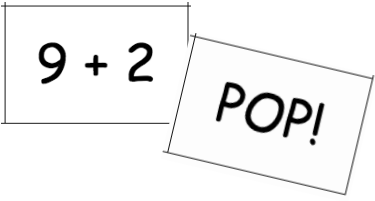

Daily Routines to continue with no change:	
Number of Days in School Counting Forward and Backward within 20 on the Number Line	Daily Schedule Ordering Numbers
Adjusted Daily Routine:	
<p><u>Patterned Monthly Calendar</u> Frequency: Daily Objective: Provide opportunities for students to develop a sense of time and to see and describe patterns. Description: Continue to review months of the year, days of the week, 7 days in the week, 30–31 days in a month, yesterday, today, and tomorrow.</p> <p>Use wholes, halves, and fourths on your calendar by cutting shapes in half and in fourths and using them to create a pattern on the calendar. See example to the right.</p>	
<p><u>Data and Graphing</u> Frequency: 1 day per week Objective: To provide students opportunities to gather, organize, represent and interpret data.</p>	<p><u>New questions for organizing and comparing data:</u></p> <ul style="list-style-type: none"> • Flip a coin - How many heads?



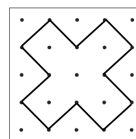
<p>Description: Continue to expose students to a variety of different organizational strategies for data and compare strategies. As the year goes on, the class should be working toward representations that show the information clearly and allow for easy comparison between categories.</p> <p>Discussion ideas for the summary include: <i>How many responses are in each category?</i> <i>How many responses are there altogether?</i> <i>Which category has more? How many more?</i> <i>Which has fewer? How many fewer?</i> <i>Which organizations are the clearest? Why?</i></p> <p><i>This daily routine, together with the optional data lessons in Units 1.2, 1.7 and 1.8, introduce 1st graders to the following standard. If all these lessons are taught, Unit 1.10 is optional.</i></p> <p>Measurement and Data Represent and interpret data. 1.MD.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.</p>	<p>How many tails?</p> <ul style="list-style-type: none"> • Weather Graph - How many sunny days? How many cloudy/foggy days? How many rainy days? <p>Personal Questions 2 Categories:</p> <ul style="list-style-type: none"> • Blue pants/Not blue pants • Shoes with laces/Shoes without laces • Long hair/short hair <p>3 Categories:</p> <ul style="list-style-type: none"> • Red shirt / Blue shirt / Neither red nor blue • 0 siblings / 1 or 2 siblings / More than 2 siblings <p><i>Be sensitive to status issues that may arise during this discussion. Some students may feel self conscious about discussing their families, personal attributes, or preferences.</i></p>
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Learning Stations Bank

Below are the Learning Stations suggested for this unit. Once established, some stations may be continued all year, while others can introduce new concepts that build on previous activities.

Previous Learning Stations	Resources
<p>Number Challenge (From Unit 1.3)</p>  <p>Variations:</p> <ol style="list-style-type: none"> 1. Students determine the smallest total and the winner collects those cards. 2. Use cards 0–5 only, and turn over 2 or 3 cards at a time. 3. Subtract the smaller number card from the larger number card to find the difference. 	<p>Number cards, 0–10 (4 of each) Number line Counters</p> 
<p>Pop! - Add 0, 1, and 2 (From Unit 1.3)</p>  <p>Variations: Play with only the 1–10 cards, only the 10–20 cards, only the +1 cards, or only the +2 cards.</p>	<p>Pop! Cards S C Container Number line</p> 

<p>Geoboard Shape Cards (From Unit 1.2)</p> <p>Objective: To provide students opportunities to explore the attributes of shapes.</p>	<p>Geoboards with rubber bands Geoboard Shape Cards BLM</p>
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New Learning Station Descriptions	Resources
<p>Title: Turn-Around Dominoes</p> <p>Objective: To support development of addition fluency and the commutative property.</p> <p>Description:</p> <ol style="list-style-type: none"> 1. Choose a domino and draw it. 2. Write an addition number sentence by adding the dots on each side of the domino. 3. Flip your domino around, draw it again, and write the Turn-Around fact. 4. Repeat with other dominoes. 	<p>Dominoes Math notebooks</p>
<p>Title: Subtraction Bowling</p> <p>Objective: To practice subtraction.</p> <p>Description:</p> <ol style="list-style-type: none"> 1. Set up 10 cups like bowling pins, in a triangle formation with 4 in the back, then 3, 2, and 1 in the front. 2. Student rolls the ball to knock over cups. 3. Student records the situation with a tape diagram in their math notebook. 4. Student writes a subtraction equation to model the situation. 5. Repeat steps 1–4. 	<p>Ball 10 cups</p>
<p>Title: Cuisenaire Counting</p> <p>Objective: To practice subitizing.</p> <p>Description: Students add Cuisenaire rods of different sizes to match the length of a given rod.</p>	<p>nrich.maths.org/2724 Computer</p>
<p>Title: Minus Mission</p> <p>Objective: To practice subtraction.</p> <p>Description:</p> <ol style="list-style-type: none"> 1. Set the number range to be just challenging for the student. 2. Set the speed to slow, unless the student wishes to work faster. 3. Students shoot blobs of goo at expressions that match the difference on the laser shooter. 	<p>tinyurl.com/y97mzbvy Computer</p>
<p>Title: Fruit Splat Number Line Subtraction</p> <p>Objective: To recognize subtraction equations on a number line.</p> <p>Description:</p>	<p>tinyurl.com/n6d96cv Computer</p>


<ol style="list-style-type: none"> 1. Choose Level 1 (subtracting 1), Level 2 (subtracting 2), or Level 3 (subtracting 1–9). 2. Choose Relaxed Mode and Slow Fruit. 3. Splat the fruit with the equation that matches the number line. 	
<p>Title: Origami Fox</p> <p>Objective: To develop a deeper understanding of partitioning shapes. To develop spatial sense and geometric reasoning.</p> <p>Description: Students use origami paper to construct animals.</p>	<p>Origami Fox BLM S C</p> <p>Origami paper or paper squares</p>
<p>Title: Journal Writing Prompts</p> <p>Objective: To provide students independent time to write about and reflect on mathematics.</p> <p>Description: Students date their math notebooks. Then they glue journal prompts into their math notebooks and answer the prompt. Provide opportunities for students to share their journal writing with the class.</p> <div data-bbox="159 821 1144 915" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>There are more than 10, but fewer than 20, apples in the basket. How many could there be?</p> </div>	<p>Journal Prompts BLM S C</p> <p>Math Notebooks</p>

Entry Task

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Core Math	Mathematical situations that require the subtracting of small quantities can be done by counting back. Pictures and equations can be used to represent the situation.
Description	Students solve a subtraction word problem and investigate the differences between addition and subtraction.
CCSS-M Standard(s)	Operations and Algebraic Thinking Represent and solve problems involving addition and subtraction. 1.OA.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
Resources and Setup	<ul style="list-style-type: none"> • Kathy's Books S C • Kathy's Books Three Read BLM S C • Kathy's Books Three Read Picture BLM • Previously used math tools and manipulatives
Homework	Homework 1 S C

Math Talk



Expression Talk Set 1

Question: What is _____? What strategy did you use?			
Set #1	$7 + 3$	$6 + 3$	$8 + 3$

Lesson Plan	
LAUNCH	<p>Review Math Norms:</p> <p>Choose a norm to focus on for today's lesson based on what area your students would benefit from working on.</p> <div data-bbox="829 1329 1450 1478">  </div> <p>Introduce the Task using the Three Read Protocol</p> <p>Tell students that they will be solving a math story and that the class will be using the Three Read Protocol to help everyone understand the math story. For more information on the Three Read Protocol see http://www.sfusdmath.org/3-read-protocol.html.</p> <p>Allow students to use any tools or manipulatives they have used previously for the following story: <i>Kathy has 15 books on her bookshelf. She took 1 off the bookshelf to read.</i></p> <p>Use the question <i>How many books are on the bookshelf now?</i> or a student-generated question that involves subtraction. Tell students that they may use counters or a drawing to solve the problem.</p> 

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EXPLORE	<p>Give students time to work on the task independently. After a few minutes, have them work on this task with partners. Challenge students to write an equation to match the problem if they are ready.</p>
<p>2</p>	<p>Circulate around the room observing what students are doing. Provide in-the-moment support when needed but be mindful of not over-scaffolding.</p> <p>Guiding Questions:</p> <ul style="list-style-type: none"> • <i>What do you know about the problem?</i> • <i>Can you draw a picture of the problem? Could you use counters to help you solve the problem? Can you act it out?</i> • <i>How do you know your answer is correct?</i> <p>→ Key Math to Observe</p> <ul style="list-style-type: none"> • Do the students draw a picture, use counters or their fingers, or do they just know? • What strategies are students using? Are they trying different things? • How are students using manipulatives and tools? • How are students representing their thinking? • How are students working with each other?
SUMMARIZE	<p>→ Core Math to Emphasize</p> <ul style="list-style-type: none"> • Mathematical situations that require the subtracting of small quantities can be done by counting back. Pictures and equations can be used to represent the situation.
<p>3</p>	<p>Remind students of the Addition Strategies anchor chart they created in the last unit. Ask them what is the same and what is different about the addition problems they have been doing and the problem they did today. Ask them if they could use any of the strategies on the chart to solve the problem. Students may notice that they can count back instead of counting on. Ask them if they can change the order the way they did in addition. Students should be able to say that they can't take 15 away if they only have 1 to start with.</p> <div data-bbox="922 1297 1008 1388"> </div> <div data-bbox="1023 835 1466 1409"> <p>Addition Strategies</p> <p>Count on</p> <p>+0 $8 + 0 = 8$ </p> <p>+1 $8 + 1 = 9$ </p> <p>+2 $8 + 2 = 10$ </p> <p>Change the order</p> <p>$0 + 8 \rightarrow 8 + 0$</p> <p>$1 + 8 \rightarrow 8 + 1$</p> <p>$2 + 8 \rightarrow 8 + 2$</p> <p>Think doubles</p> <p>$5 + 5 = 10$ </p> <p>Think doubles + 1</p> <p>$5 + 5 + 1 = 11$ </p> <p>$5 + 6 = 11$ </p> </div> <div data-bbox="423 1444 503 1535"> </div> <p>Notebook Prompt</p> <p>Pick a number between 10 and 20 and write it down. Now subtract 1 from it.</p>

Notes	Universal Support
<ul style="list-style-type: none"> • Students may add rather than subtract. 	<ul style="list-style-type: none"> • Support students in acting out the situation to see that this is a Take From situation.

Extensions	<p>Have students start with a different number of books on the shelf and subtract 1.</p>
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Lesson Series 1 **Overview**

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Description

Students investigate the subtraction strategies of counting back on the number line and decomposition to 10 on a double ten frame with cards and dice.

Standards

Operations and Algebraic Thinking

Add and subtract within 20.

1.OA.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 $6 + 6 + 1 = 12 + 1 = 13$).

Work with addition and subtraction equations.

1.OA.7 Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.*

	Day 1	Day 2	Day 3	Day 4
Core Math	Subtracting small quantities can be done by counting back. Counting back can be demonstrated on a number line.	Subtracting small quantities can be done by counting back. Counting back can be demonstrated on a number line.	Decomposing to make ten can make subtraction easier. The decomposition can be seen with a ten frame.	Decomposing to make ten can make subtraction easier. The decomposition can be seen with a ten frame.
Description	Students subtract 0, 1, and 2 from a given number and explore the number line.	Students play the subtraction game with cards and a die again, this time with the numbers 0–20.	Students use counters and a double ten frame to find all the subtraction facts to 10.	Students solve subtraction problems that cross the decade by subtracting to 10 and then some more.
Resources and Setup	<ul style="list-style-type: none"> Number Lines 0 to 20 BLM or optional 0–20 Linking Cube Number Line BLM Dice labeled –0, –1, –2 Number cards Math notebooks Chart paper for anchor chart 		<ul style="list-style-type: none"> Counters Double ten frame Number cards Math notebooks Subtraction Strategies anchor chart 	
Homework	Homework 2 S C	Homework 3 S C	Homework 4 S C	Homework 5 S C

Lesson Series 1 – Day 1

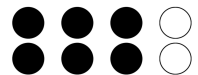
Core Math	Subtracting small quantities can be done by counting back. Counting back can be demonstrated on a number line.
Description	Students subtract 0, 1, and 2 from a given number and explore the number line.
CCSS-M Standard(s)	<p>Operations and Algebraic Thinking Add and subtract within 20. 1.OA.6 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 $6 + 6 + 1 = 12 + 1 = 13$).</p> <p>Work with addition and subtraction equations. 1.OA.7 Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. <i>For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.</i></p>
Resources and Setup	<ul style="list-style-type: none"> • Number Lines 0 to 20 BLM or optional 0–20 Linking Cube Number Line BLM • Dice labeled –0, –1, –2 • Number cards 2–10 • Math notebooks • Chart paper for anchor chart
Homework	Homework 2 S C

Math Talk



Dot Talk 1

Question: What do you see? What equation would match the picture? Could a subtraction equation match the picture?



Lesson Plan

LAUNCH

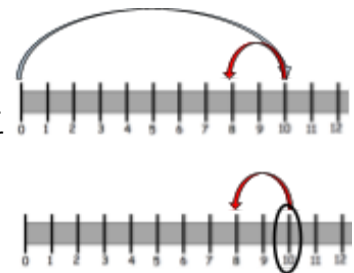
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Remind students of the addition game they played with the +0, +1, and +2 dice and how they counted on using the number line. Ask them what that game might look like with subtraction.

Explain the rules, using the number line model.

- Partner A draws a number card. Partner B rolls the die.
- Partner A finds the number on the card on the number line. Partner B counts back the number on the die.
- Both partners write the equation in their math notebooks using the following format:

card – die = difference



	<ul style="list-style-type: none">Both partners agree on the equation and the answer.Partners switch roles and start again.Partners do not need to record their number line work. They may count up on the number line to the card number and then count back, or find the number on the card and then count back. Both these methods are shown in the example.															
EXPLORE	Allow students to play as long as time and interest allow.															
2	<p>Guiding Questions:</p> <ul style="list-style-type: none">Show me where the card number is on the number line. Which way will you move to take 1 (0,2) away?Show me where the numbers in your equation are on the number line.Will you have more or fewer if you take some away? <p>→ Key Math to Observe</p> <ul style="list-style-type: none">How are students using the number line?Do their equations match the card and die?Are the equations accurate? Do they match the situations?															
SUMMARIZE	<p>→ Core Math to Emphasize</p> <ul style="list-style-type: none">Subtracting small quantities can be done by counting back. Counting back can be demonstrated on a number line. <p>Have two to three students demonstrate how they subtracted using the number line. Be sure the equation is showing during the demonstrations. Have students connect the number line to their equations and the card and die. Tell students this strategy is called "Counting Back."</p> <p>Start a Subtraction Strategies anchor chart with Count Back.</p> <div></div> <div><table><tr><th colspan="3">Subtraction Strategies</th></tr><tr><td>Count back</td><td></td><td></td></tr><tr><td>-0</td><td>$8 - 0 = 8$</td><td></td></tr><tr><td>-1</td><td>$8 - 1 = 7$</td><td></td></tr><tr><td>-2</td><td>$8 - 2 = 6$</td><td></td></tr></table></div>	Subtraction Strategies			Count back			-0	$8 - 0 = 8$		-1	$8 - 1 = 7$		-2	$8 - 2 = 6$	
Subtraction Strategies																
Count back																
-0	$8 - 0 = 8$															
-1	$8 - 1 = 7$															
-2	$8 - 2 = 6$															
3	<div></div> <p>Notebook Prompt Draw the difference between adding 1 and subtracting 1.</p>															


Notes	Universal Support
<ul style="list-style-type: none"> Students may confuse addition and subtraction. Students may struggle with using the number line 	<ul style="list-style-type: none"> Remind students of the Entry Task word problem where a book was taken away. Tell students that the subtraction sign tells us we are taking away or taking apart a number. Use the 0-20 Linking Cube Number Line BLM with linking cubes to give students a direct connection between the manipulative and the number line

Extensions	Have students roll the die twice and create a three-part subtraction equation, for example: $15 - 2 - 1 = 12$. Students may write two equations instead of one as needed ($15 - 2 = 13$ and $13 - 1 = 12$).
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Lesson Series 1 – Day 2

Core Math	Subtracting small quantities can be done by counting back. Counting back can be demonstrated on a number line.
Description	Students play the subtraction game with cards and a die again, this time with the numbers 0–20.
CCSS-M Standard(s)	<p>Operations and Algebraic Thinking Add and subtract within 20. 1.OA.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 $6 + 6 + 1 = 12 + 1 = 13$).</p> <p>Work with addition and subtraction equations. 1.OA.7 Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. <i>For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.</i></p>
Resources and Setup	<ul style="list-style-type: none"> • Number Lines 0 to 20 BLM or optional 0–20 Linking Cube Number Line BLM • Dice labeled –0, –1, –2 • Number cards 2–10 • Math notebooks • Subtraction Strategies anchor chart
Homework	Homework 3 S C


Math Talk



Expression Talk Set 2

Question: What is ____? What strategy did you use?			
Set #2	$5 + 5$	$5 + 6$	$6 + 5$


Lesson Plan	
LAUNCH	Remind students of the subtraction game they played on Day 1. Tell them they are going to play again today, but this time with numbers 2 to 20. Re-explain the rules if needed:
1	<ul style="list-style-type: none"> • Partner A draws a number card and Partner B rolls the die. • Partner A finds the number from the card on the number line. Partner B counts back the number shown on the die. • Both partners write the equation in their math notebooks using the following format: $\frac{\quad}{\text{card}} - \frac{\quad}{\text{die}} = \frac{\quad}{\text{difference}}.$

	<ul style="list-style-type: none"> Both partners agree on the equation and the answer. Partners switch roles and start again.
EXPLORE	Allow students to play as long as time and interest allow. Refer students to the anchor chart from yesterday as needed.
2	<p>Guiding Questions:</p> <ul style="list-style-type: none"> Show me where the card number is on the number line. Which way will you move to take 1 (0,2) away? Show me where the numbers in your equation are on the number line. Will you have more or fewer if you take some away? <p>→ Key Math to Observe</p> <ul style="list-style-type: none"> How are students using the number line? Do their equations match the card and die? Are the equations accurate? Do they match the situations?
SUMMARIZE	<p>→ Core Math to Emphasize</p> <ul style="list-style-type: none"> Subtracting small quantities can be done by counting back. Counting back can be demonstrated on a number line. <p>Have two to three students demonstrate how they subtracted using the number line. Be sure the equation is showing during the demonstrations. Have students connect the number line to their equations and the card and die.</p> <hr/> <div>  <p>Notebook Prompt Draw the difference between adding 2 and subtracting 2.</p> </div> <hr/>
3	

Notes	Universal Support
<ul style="list-style-type: none"> Students may confuse addition and subtraction. 	<ul style="list-style-type: none"> Remind students of the Entry Task word problem where a book was taken away. Tell students that the subtraction sign tells us we are taking away or taking apart a number. Support students in seeing the relationship between the parts and the whole of number relationships.

Extensions	Have students roll the die twice and create a three-part equation, for example, $15 - 2 + 1 = 14$ or $15 + 2 + 1 = 18$.
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Lesson Series 1 – Day 3

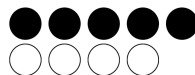
Core Math	Decomposing to make ten can make subtraction easier. The decomposition can be seen with a ten frame.
Description	Students use counters and a double ten frame to find all the subtraction facts to 10.
CCSS-M Standard(s)	Operations and Algebraic Thinking Add and subtract within 20. 1.OA.6 Add 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 $6 + 6 + 1 = 12 + 1 = 13$).
Resources and Setup	<ul style="list-style-type: none"> Counters, 20 per pair Ten and Double Ten Frame, 1 per pair Teen number cards 10–20, 1 set per pair Math notebooks Subtraction Strategies anchor chart 
Homework	Homework 4 S C

Math Talk



Dot Talk 2

Question: What do you see? What equation would match the picture? Could a subtraction equation match the picture?





Lesson Plan

LAUNCH

1

Remind students of the Make a Ten strategy they used for addition and ask them how they might use that strategy in subtraction. Accept all replies. Tell students that today they are going to explore all the subtraction problems that will result in ten. Demonstrate how to play with a student partner.

- Partner A turns over the top card and places that many counters onto the double ten frame.
- Partner B takes away all the counters in the second ten frame, leaving the first ten frame full.
- Students tell each other the equation that matches what they did, for example, $15 - 5 = 10$, then record it in their math notebooks.
- Partner B puts that card aside and turns over a new card to start a new round.
- Partners do not need to record their double ten frame work.


EXPLORE	Allow students to play as long as time and interest allow.
2	<p>Guiding Questions:</p> <ul style="list-style-type: none"> • <i>How many counters did you put on the double ten frame?</i> • <i>How many should you take off to have 10 left?</i> • <i>What equation could you write to match what you did?</i> <p>→ Key Math to Observe</p> <ul style="list-style-type: none"> • Are students accurate in counting out the number of counters represented by the card? • Do they count back to get to ten or use a different method? • Do students see the pattern in the equations (take away the ones digit of the teen number)?
SUMMARIZE	→ Core Math to Emphasize
3	<ul style="list-style-type: none"> • Decomposing to make ten can make subtraction easier. The decomposition can be seen with a ten frame. <p>Gather students in a central location with their math notebooks and ask them what pattern they see in the equations. Students should notice that they consistently take away the ones number.</p> <p>Start with 10 and review and write out all the subtraction to 10 facts:</p> <p>10 - 0 = 10 11 - 1 = 10 12 - 2 = 10 etc.</p> <p>Ask students how they might use subtraction to 10 to help them subtract numbers that are larger than the ones digit in the teen number (the minuend). Students may notice that they could take away counters up to ten and then take away some more.</p> <div>  </div> <hr/> <div>  <p>Notebook Prompt Write or draw what you know about subtracting to get to 10.</p> </div> <hr/>

Notes	Universal Support
<ul style="list-style-type: none"> • Students may continue to count the quantity they subtract without making the connection between the ones digit of the teen number and that quantity. 	<ul style="list-style-type: none"> • Have students count out the quantity of counters over ten, saying “10 and 1, 2, etc.” Have students identify what they take away and compare it to the “and” number.


Extensions	Ask students what the difference would be if they took away one more.
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Lesson Series 1 – Day 4

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Core Math	Decomposing to make ten can make subtraction easier. The decomposition can be seen with a ten frame.
Description	Students solve subtraction problems that cross the decade by subtracting to 10 and then some more.
CCSS-M Standard(s)	<p>Operations and Algebraic Thinking Add and subtract within 20. 1.OA.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 $6 + 6 + 1 = 12 + 1 = 13$).</p> <p>Work with addition and subtraction equations. 1.OA.7 Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. <i>For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.</i></p>
Resources and Setup	<ul style="list-style-type: none"> Counters, 20 per pair Double ten frame, 1 per pair Number cards, divided into two piles: 10–15 and 5–9, 1 set per pair Math notebooks Subtraction Strategies anchor chart 
Homework	Homework 5 S C





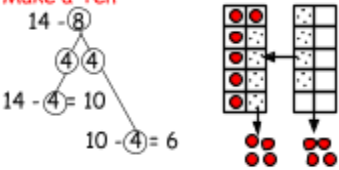
Math Talk



Expression Talk Set 3

Question: <i>What is ____? What strategy did you use?</i>		
$9 + 1$	$1 + 9$	$9 + 2$

Lesson Plan	
LAUNCH	Remind students of the subtraction they did on Day 3 to get to 10 and ask them how they might use that strategy to subtract a number that is larger than the ones digit in a teen number. Accept all replies. Tell the students that today they are going to play a game where they will take away beyond ten. Demonstrate the game with a partner.
1	<ul style="list-style-type: none"> Both piles of number cards are placed face down on the table. The 10–15 pile is in front of Partner A and the 5–9 pile is in front of Partner B. Partner A turns over the top card and counts out that many counters onto the double ten frame, for example, 14. Partner B turns over the top card from the 5–9 pile, for example 8, then takes away enough counters to get to 10, for example, $14 - 4 = 10$.



	<ul style="list-style-type: none"> Both partners determine how many more they need to take away, then remove those from the ten frame ($10 - 4 = 6$). Both partners write the equation in their math notebooks, $14 - 8 = 6$.
EXPLORE	<p>Allow students to play as long as time and interest allow. Watch for the ways in which students take apart the subtrahend, and how they keep track of what is left to take away after making ten. Allow students to write two equations rather than one ($16 - 6 = 10$ and $10 - 2 = 8$) if they prefer. Students do not need to record their ten frame work.</p> <p>2</p> <p>Guiding Questions:</p> <ul style="list-style-type: none"> How many did you start with? How many should you take away to make 10? How many more do you need to take away? How could you write that in an equation? <p>→ Key Math to Observe</p> <ul style="list-style-type: none"> Are students able to decompose the subtrahend (students do not need to know this word)? How do students keep track of what has been subtracted and what still needs to be subtracted? What equation are the students recording?
SUMMARIZE	<p>→ Core Math to Emphasize</p> <p>Decomposing to make ten can make subtraction easier. The decomposition can be seen with a ten frame.</p> <p>Choose two to three students to show how they decomposed the subtrahend to subtract to ten and then beyond. Ask students when they might want to use this strategy and when they would not, or why it's helpful to get to 10 when subtracting.</p> <p>Add Make a Ten to the Subtraction Strategies anchor chart.</p> <p>3</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>Notebook Prompt</p> <p>Write a subtraction equation that you would use the Make a Ten strategy to solve.</p> </div> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p style="text-align: center;">Subtraction Strategies</p> <p>Count back</p> <p>-0 $8 - 0 = 8$ </p> <p>-1 $8 - 1 = 7$ </p> <p>-2 $8 - 2 = 6$ </p> <p>Make a Ten</p> <p>$14 - 8$</p> <p>$14 - 4 = 10$ $10 - 4 = 6$</p>  </div>

Notes	Universal Support
<ul style="list-style-type: none"> Students may lose track of how many they are taking away. 	<ul style="list-style-type: none"> Remind students of the number on the second card and ask if they have taken away that many yet. Ask how many more they need to take away to make that quantity.
Extensions	<p>Include the number cards 10–19 in Partner A's pile. Have students determine when they would use the Make a Ten strategy and when they would use a different strategy.</p>

Apprentice Task

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Core Math	The numbers in a situation can determine which strategy to use for a solution. A number line can represent many strategies.
Description	Students solve a subtraction word problem using a double ten frame or a number line.
CCSS-M Standard(s)	Operations and Algebraic Thinking Represent and solve problems involving addition and subtraction. 1.OA.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
Resources and Setup	<ul style="list-style-type: none"> • Kites S C • Kites Three Read BLM S C • Kites Three Read Picture BLM • Number line or optional 0–20 Linking Cube Number Line BLM and linking cubes • Double ten frame and counters
Homework	Homework 6 S C

Math Talk 	Dot Talk 3 <div> Question: <i>What do you see? What equation would match the picture? Could a subtraction equation match the picture?</i> </div> <div>  </div>
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Lesson Plan	
LAUNCH	Introduce the Task using the Three Read Protocol Tell students that they will be solving a math story and that the class will be using the Three Read Protocol to help everyone understand the math story. For more information on the Three Read Protocol see www.sfusdmath.org/3-read-protocol.html .
1	Show students the number line and the double ten frames that they have been using so far in this unit and tell them they may choose which tool they want to use. Read the following story: <i>Mr. Brown has a kite store at Pier 39. There were 15 kites in the store. He sold 6 kites on Saturday.</i> Use the question <i>How many kites are in the store now?</i> or a student-generated question that is similar.
EXPLORE	Have students work on the task with a partner.

2

Watch for which tool (number line, double ten frame, or neither) students choose to use and how they use it.

Guiding Questions:

- *What do you know about the story?*
- *Could you act the story out?*
- *Which tool would you like to use?*
- *Which strategy would you like to use?*

→ **Key Math to Observe**

- How are students making sense of the task?
- What strategy are students using?
- Which tool did they choose to use?
- How are students representing their thinking?
- How are students working with each other?

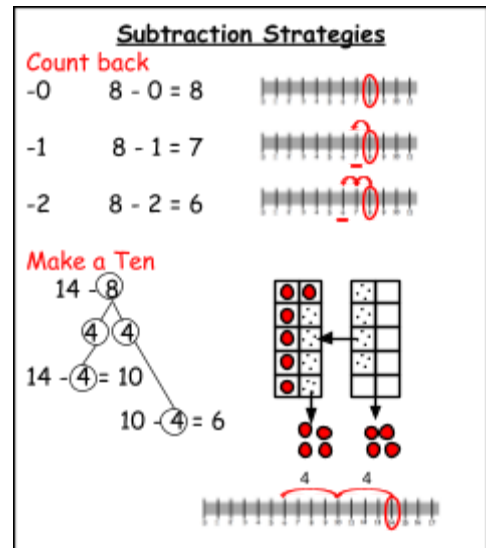
SUMMARIZE

3

→ **Core Math to Emphasize**

- The numbers in a situation can determine which strategy to use for a solution. A number line can represent many strategies.

Choose two to three students to share their strategies. Choose students who used the double ten frame and the number line. Have students demonstrate how they used the tool. Add the number line to the Make a Ten strategy on the Subtraction Strategies anchor chart.



Notebook Prompt

Write or draw what you learned today.

Notes

- Students may add 15 and 6.

Universal Support

- Have students act out the situation or model it with counters.

Extensions

Have students create and solve another subtraction problem involving Mr. Brown and his kites.

Lesson Series 2 Overview

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Description

Students investigate subtraction as the inverse of addition by using the Think Addition strategy with doubles and doubles plus one. They use a tape diagram to represent the situations.

Standards

Operations and Algebraic Thinking

Understand and apply properties of operations and the relationship between addition and subtraction.

1.OA.4 Understand subtraction as an unknown-addend problem. *For example, subtract 10-8 by finding the number that makes 10 when added to 8.*

Add and subtract within 20.

1.OA.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 $6 + 6 + 1 = 12 + 1 = 13$).

Work with addition and subtraction equations.


1.OA.7 Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.*

	Day 1	Day 2	Day 3
Core Math	Subtraction is the inverse of addition. Knowledge of addition doubles can be used to solve subtraction situations. A tape diagram can represent the situation.	Subtraction is the inverse of addition. Knowledge of doubles can be used with addition to solve subtraction situations. A tape diagram can represent the situation.	Subtraction is the inverse of addition. Knowledge of doubles +1 can be used with addition to solve subtraction situations. A tape diagram can represent the situation.
Description	Students play a game with linking cubes where a total is broken into two equal parts to explore how doubles addition facts can be used in subtraction.	Students draw tape diagrams to represent Think Addition problems with doubles.	Students draw tape diagrams to represent Think Addition problems with doubles +1.
Resources and Setup	Doubles Pictures BLM Linking cubes Even number cards, 2-20 Math notebooks Subtraction Strategies anchor chart	Even number cards 2-20 Linking cubes Day 2 Tape Diagrams S C	Linking cubes Odd number cards, 3-19 Day 3 Tape Diagrams S C
Homework	Homework 7 S C	Homework 8 S C	Homework 9 S C

Lesson Series 2 – Day 1

Core Math	Subtraction is the inverse of addition. Knowledge of addition doubles can be used to solve subtraction situations. A tape diagram can represent the situation.
Description	Students play a game with linking cubes where a total is broken into two equal parts to explore how doubles addition facts can be used in subtraction.
CCSS-M Standard(s)	<p>Operations and Algebraic Thinking</p> <p>Add and subtract within 20.</p> <p>1.OA.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 $6 + 6 + 1 = 12 + 1 = 13$).</p> <p>Work with addition and subtraction equations.</p> <p>1.OA.7 Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. <i>For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.</i></p>
Resources and Setup	<ul style="list-style-type: none"> • Doubles Pictures BLM (from Unit 1.3) • Even number cards, 2–20 (use cards up to 10 or 12 only as needed) • Linking cubes • Math notebooks • Subtraction Strategies anchor chart
Homework	Homework 7 S C

Math Talk



Expression Talk Set 4

Question: What is ____? What strategy did you use?

4 + 6	5 + 6	4 + 7
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Lesson Plan	
LAUNCH	Show students a couple of the doubles pictures and ask them what they learned about doubles in addition. Ask them how this might help them with subtraction. Accept all replies.
1	<p>Tell students that they will be playing a doubles subtraction game and demonstrate the game with a student partner.</p> <ul style="list-style-type: none"> • Shuffle the even number cards and lay them face down between the partners. • Partner A takes the top card and Partner B creates a linking cube train of that length.

	<ul style="list-style-type: none"> Partner A breaks the train in half (into 2 equal pieces – consider discussing that 2 halves of one object must be equal). Both students write the subtraction equation in their math notebooks (i.e., $8 - 4 = 4$). Partners trade roles and play again.
EXPLORE	Have students work with partners to create trains, break them into 2 equal pieces, and record the equations in their math notebooks as long as time and attention allow.
2	<p>Guiding Questions</p> <ul style="list-style-type: none"> <i>How is this the same as the doubles addition game we played? How is it different?</i> <i>What double do you know that makes ____?</i> <p>→ Key Math to Observe</p> <ul style="list-style-type: none"> Are students able to create the equation from the representation? How are students talking about their halved trains? Are students counting each piece or do they recognize that both halves will be the same? Are students counting back to find the difference? Are they using facts they already know to determine the unknown?
SUMMARIZE	<p>→ Core Math to Emphasize</p> <p>Subtraction is the inverse of addition. Knowledge of addition doubles can be used to solve subtraction situations. A tape diagram can represent the situation.</p> <p>Have two to three student pairs show their strategies for solving the problems. Ask students what they noticed while they played the game. They may say that all the numbers they started with were even, that they knew the sum and that helped them know the difference, and that the number that they take away and the number that is left are the same.</p> <p>Ask students how they could use a tape diagram to represent the situation. Allow them to draw or describe their thinking.</p> <p>Add “Think Addition” to the Subtraction Strategies anchor chart, using the tape diagram to represent it.</p> <div data-bbox="938 1291 1036 1390" data-label="Image"> </div> <div data-bbox="1042 867 1461 1449" data-label="Figure"> <p>Subtraction Strategies</p> <p>Count back</p> <p>-0 $8 - 0 = 8$ </p> <p>-1 $8 - 1 = 7$ </p> <p>-2 $8 - 2 = 6$ </p> <p>Make a Ten</p> <p>$14 - 8$</p> <p>$14 - 4 = 10$</p> <p>$10 - 4 = 6$</p> <p></p> <p>Think Addition (Doubles)</p> <p>$12 - 6 = ?$</p> <p>$6 + ? = 12$</p> <p>$6 + 6 = 12$</p> <p></p> </div> <div data-bbox="423 1606 518 1715" data-label="Image"> </div> <p>Notebook Prompt</p> <p>Draw a tape diagram for $10 - 5$.</p>

Notes	Universal Support
<ul style="list-style-type: none"> Students may have difficulty converting the activity to an equation. 	<ul style="list-style-type: none"> Provide an equation frame such as: $\frac{\text{card}}{\text{card}} - \frac{\text{cube train 1}}{\text{cube train 1}} = \frac{\text{cube train 2}}{\text{cube train 2}}$
Extensions	<p>Have students move one cube from their half-size trains to the other and solve the problem (e.g., $10 - 5 = 5$ becomes $10 - 4 = 6$ or $10 - 6 = 4$). See if they can find both equations. Ask students to look for a pattern (the difference will be 1 more or 1 fewer than the doubles difference).</p>

Lesson Series 2 – Day 2

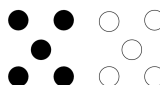
Core Math	Subtraction is the inverse of addition. Knowledge of doubles can be used with addition to solve subtraction situations. A tape diagram can represent the situation.
Description	Students draw tape diagrams to represent Think Addition problems with doubles.
CCSS-M Standard(s)	<p>Operations and Algebraic Thinking Add and subtract within 20. 1.OA.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 $6 + 6 + 1 = 12 + 1 = 13$).</p> <p>Work with addition and subtraction equations. 1.OA.7 Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. <i>For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.</i></p>
Resources and Setup	<ul style="list-style-type: none"> Even number cards, 2–20 (use cards up to 10 or 12 only as needed) Linking cubes Day 2 Tape Diagrams S C
Homework	Homework 8 S C

Math Talk

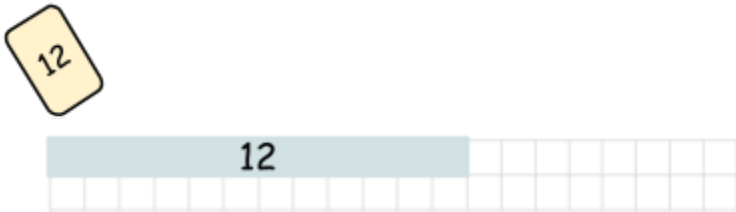
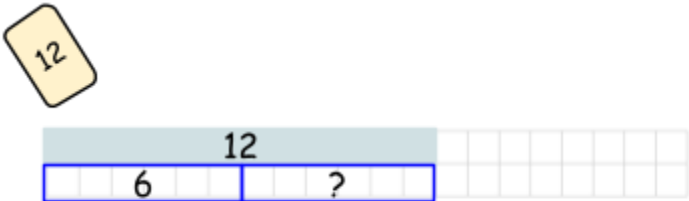


Dot Talk 4

Question: What do you see? What equation would match the picture? Could a subtraction equation match the picture?



Lesson Plan	
LAUNCH	Remind students of the Think Addition game they played yesterday. Tell them that today they are going to play the game again, but they are going to draw a tape diagram to represent the problems.
1	<p>Demonstrate how to play with a partner:</p> <ul style="list-style-type: none"> Shuffle the even number cards and lay them face down between the partners. Partner A takes the top card and Partner B creates a linking cube train of that length.

	<ul style="list-style-type: none"> Partner B colors in that many squares on the student page.  <p>Equation _____</p> <ul style="list-style-type: none"> Partner A breaks the train in half (into 2 equal pieces – consider discussing that 2 halves of one object must be equal). Partner B draws one of the parts on the tape diagram and adds a question mark for the other part. The order of the parts does not matter.  <p>Equation <u>12 - 6 = 6 or 6 + 6 = 12</u></p> <ul style="list-style-type: none"> Both students solve the problem and write the subtraction and/or addition equation on the student page (i.e., $12 - 6 = 6$, $6 + 6 = 12$). Partners trade roles and play again.
EXPLORE	<p>Have students play as long as time and attention allow. Consider having extra copies of student pages for quick finishers. Not every problem needs to be completed.</p>
<p style="font-size: 48pt; color: green; text-align: center;">2</p>	<p>Guiding Questions:</p> <ul style="list-style-type: none"> <i>How is this the same as the doubles addition game we played? How is it different?</i> <i>What double do you know that makes ___?</i> <i>What should you draw? How many squares will it take up?</i> <i>How many did you take away?</i> <p>→ Key Math to Observe</p> <ul style="list-style-type: none"> Are students able to create a tape diagram? Is it accurate? Do they write an accurate equation? How are students talking about their halved trains? Are students counting each piece or do they recognize that both halves will be the same? Are students counting back to find the difference? Are they using facts they already know to determine the unknown?
SUMMARIZE	<p>→ Core Math to Emphasize</p> <ul style="list-style-type: none"> Subtraction is the inverse of addition. Knowledge of doubles can be used with addition to solve subtraction situations. A tape diagram can represent the situation.

3

Have two to three student pairs share their work, connecting the number card to the linking cubes, then the tape diagram. Ask students what they noticed about the tape diagrams. Students may say that the tape diagram looked the same as their linking cubes, that the take away part and the answer part were the same size, and that they could count the linking cubes and the squares for the tape diagram and they were the same.

Ask students what might happen if the cube train didn't break into 2 equal pieces. Accept all replies.



Notebook Prompt


Draw your favorite tape diagram.

Notes	Universal Support
<ul style="list-style-type: none"> Students may have difficulty writing an equation for the cubes. Students may struggle to draw the tape diagram. 	<ul style="list-style-type: none"> Provide an equation frame such as: $\frac{\text{card}}{\text{card}} - \frac{\text{cube train 1}}{\text{cube train 1}} = \frac{\text{cube train 2}}{\text{cube train 2}}$ Copy the student page enlarged for students with visual or motor skill difficulties. Allow students to trace the linking cubes on a large sheet of paper rather than use the student page.
Extensions	Have students move one cube from their half-size trains to the other and solve the problem (e.g., $12 - 6 = 6$ becomes $12 - 5 = 7$ or $12 - 7 = 5$). See if they can find both equations. Ask students to look for a pattern (the difference will be 1 more or 1 fewer than the doubles difference)

Lesson Series 2 – Day 3

Core Math	Subtraction is the inverse of addition. Knowledge of doubles +1 can be used with addition to solve subtraction situations. A tape diagram can represent the situation.
Description	Students draw tape diagrams to represent Think Addition problems with doubles +1.
CCSS-M Standard(s)	<p>Operations and Algebraic Thinking</p> <p>Add and subtract within 20.</p> <p>1.OA.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 $6 + 6 + 1 = 12 + 1 = 13$).</p> <p>Work with addition and subtraction equations.</p> <p>1.OA.7 Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. <i>For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.</i></p>
Resources and Setup	<ul style="list-style-type: none"> Linking cubes Odd number cards, 3–19 Day 3 Tape Diagram Student S C
Homework	Homework 9 S C

Math Talk

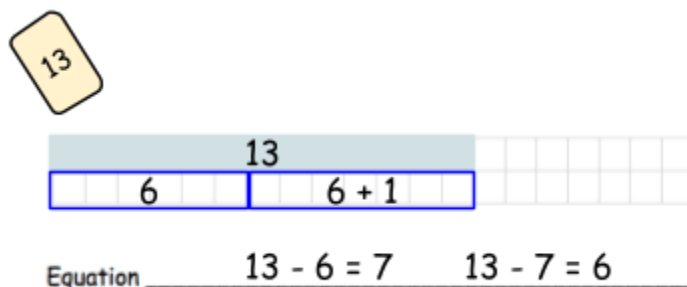


Expression Talk Set 5

Question: <i>What is _____? What strategy did you use?</i>		
$6 + 6$	$6 + 7$	$6 + 8$

Lesson Plan	
LAUNCH	Tell students that they will be playing the doubles subtraction game again today, but you have changed the number cards. Pass out the cards and the linking cubes and allow students to play without any further instruction.
1	
EXPLORE	When students have played two to three rounds, ask them what they have noticed. They may say that they can't break the trains in half evenly, that there is a cube left over when they break the train apart, or that this reminds them of doubles +1 addition.
2	Allow a partnership who has recorded an equation correctly to share their work with the class.

Demonstrate with the linking cube train as they show the equation. Ask the students what would happen if they subtracted the other cube train instead of the one they did (e.g., $13 - 7 = 6$, instead of $13 - 6 = 7$). Ask students if there could be 2 equations for every card.



Have students try a couple more cube trains to confirm that there are always 2 equations. Tell students they should try to write both equations for every card. Have students play as long as time and attention allow.

Guiding Questions:

- How can you break this apart?
- How do you know you have half +1?
- If you know the answer for the first equation, do you also know the answer to the second equation?

→ Key Math to Observe

- Do students recognize the doubles +1 situations?
- Do their representations match the situation?
- Are students able to create the 2 equations?
- Are students counting cubes or recognizing the total quantity?
- Are students counting back to find the difference?
- Are they using facts they already know to determine the unknown?

SUMMARIZE

3

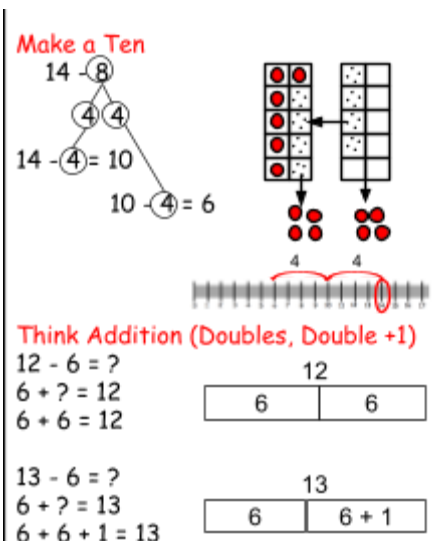
→ Core Math to Emphasize

- Subtraction is the inverse of addition. Knowledge of doubles +1 can be used with addition to solve subtraction situations. A tape diagram can represent the situation.

Ask students what they noticed while they played the game. They may say that all the numbers they started with were odd, that they knew the sum and that helped them know the difference, that they could exchange the difference and the number they took away (subtrahend) and didn't have to change any other numbers.

Ask students how today's activity was the same and how it was different from yesterday's. Accept all replies.

Add doubles +1 addition to the Subtraction Strategies anchor chart.



**Notebook Prompt**


Write the doubles facts that you know.

Notes	Universal Support
<ul style="list-style-type: none">Students may still confuse subtraction with addition.Students may not see the doubles +1 situations.	<ul style="list-style-type: none">Have students physically act out situations or use manipulatives to show subtraction.Have students lay the 2 parts next to each other. Take off the extra cube to make the trains even and have students describe what they see.
Extensions	Challenge students to think of a doubles fact -1 that could also work with the situation. For example, instead of thinking $13 = 6 + 6 + 1$, think $13 = 7 + 7 - 1$.

Expert Task

[Open in Google Drive](#)

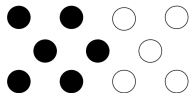
Core Math	Real-life problems can be solved with subtraction.
Description	Students determine how many cookies the Cookie Monster ate.
CCSS-M Standard(s)	<p>Operations and Algebraic Thinking Represent and solve problems involving addition and subtraction. 1.OA.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.</p> <p>Add and subtract within 20. 1.OA.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 $6 + 6 + 1 = 12 + 1 = 13$).</p>
Resources and Setup	Three Act Task Video: https://gfletchy.com/the-cookie-monster/Cookies in a Whole Package BLM Cookies Left BLM Cookies Eaten BLM Double ten frame, number line, counters Optional Instructional Video of teacher using the task: https://www.teachingchannel.org/videos/teaching-subtraction-problems-nsf
Homework	Homework 10 S C





Math Talk

Dot Talk 5

Question: What do you see? What equation would match the picture?
 Could a subtraction equation match the picture?



Lesson Plan	<p>Note: This task involves larger numbers than most of the problems in this unit. Since it is the Expert Task, it provides students an opportunity to apply and extend their developing understanding of subtraction with a partner or partners.</p> <p>This problem is also considered a Take From–Change Unknown situation, since the start (how many cookies to begin) and result (how many cookies left) are known, but the change (how many cookies were eaten) is unknown. Students may use their understanding of subtraction so far to interpret the problem; they will officially be introduced to Take From–Change Unknown situations in Unit 1.6, Problems with Unknowns.</p>
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LAUNCH	Consider using the Groupwork Feedback strategy (tinyurl.com/y894kwyl) and Group Roles (https://goo.gl/eNnXry) with this task.
1	<p>Show students the Cookie Monster video, then ask them what they notice and what they wonder. Accept all answers.</p> <p>Ask students what question they would like to answer. Students will probably want to know how many cookies the Cookie Monster ate. Ask them what they need to know to answer the question. Students may say that they need to know how many cookies were in the package to start and how many cookies are left.</p> <p>Show the Cookies in a Whole Package BLM and determine how many cookies were in the package as a class, or pass out pictures to partners and allow them to determine the total with their partner.</p> 
EXPLORE	
2	<p>Give each pair of students a copy of the Cookies Left BLM and access to any manipulatives or tools they would like to have. Remind students of the Subtraction Strategies anchor chart as a resource in case they get stuck. Allow students to work on the problem with their partners as long as time and interest allow.</p>  <p>Guiding Questions</p> <ul style="list-style-type: none"> • <i>How many cookies did you start with?</i> • <i>How many cookies are left?</i> • <i>What strategy can you use to find out how many were eaten?</i> • <i>Would a number line help? A ten frame? A tape diagram?</i> <p>→ Key Math to Observe</p> <ul style="list-style-type: none"> • How are students tackling the problem? Do they work on one row at a time? Or are they working on the whole package? • What representations are students using: tape diagram, number line, counters, drawing, ten frame? • Do students see the relationship between total cookies, cookies left, and cookies eaten? • Are students able to write equations to match the situations? • How are students reasoning with each other?
SUMMARIZE	<p>→ Core Math to Emphasize</p> <ul style="list-style-type: none"> • Real-life problems can be solved with subtraction.
3	<p>Select two to three student partnerships to share their strategies. Highlight students who drew a clear picture, created a tape diagram, or used a number line to solve the problem. Have students explain their strategies. Connect the parts of each solution strategy that match across the representations, with questions such as <i>Where is the whole package of cookies in this representation? Where are the cookies left? Which cookies did the Cookie Monster eat?</i></p> <p>Show the Cookies Eaten BLM to confirm their answers if desired.</p>

**Notebook Prompt**

Draw or write your favorite part of the Cookie Monster problem.

Notes	Universal Support
<ul style="list-style-type: none">Students may have difficulty counting the cookies in the pictures.Students may confuse the cookies remaining with the cookies eaten.	<ul style="list-style-type: none">Have students count the white filling rather than the dark wafer part of the cookies.Have students draw circles for all the cookies in the whole package. Then have them color in the cookies that are still there in the cookies left picture. Or have students represent the problem with a tape diagram and label each part.
Extensions	Ask students how many cookies would be left if the Cookie Monster had eaten 1 more cookie in each row, or 1 less, or 2 more, or 2 less.
Credits	This lesson is adapted from gfletchy.com . Used with permission of Graham Fletcher.

Lesson Series 3 Overview

Description

Students are introduced to comparison situations. They use a tape diagram to represent the problem and counters or known facts to solve it.

Standards

Operations and Algebraic Thinking

Represent and solve problems involving addition and subtraction.

1.OA.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

Add and subtract within 20.


1.OA.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 $6 + 6 + 1 = 12 + 1 = 13$).

	Day 1	Day 2	Day 3
Core Math	Quantities can be compared and the difference can be determined using subtraction.	Quantities can be compared and how many more or fewer can be determined with a visual model. A subtraction equation can represent the situation.	Quantities can be compared and the comparison can be represented with a tape diagram and an equation. Subtraction can be used to solve the problem.
Description	Students solve comparison problems using the information from the Cookie Monster problem.	Students compare quantities represented by number cards and determine which quantity is more and how much more.	Students represent a comparison between two numbers with a tape diagram and find the difference using subtraction.
Resources and Setup	Cookies Left BLM (from Expert Task), 1 per pair of students Counters Cookie Comparisons S C Math notebooks	Number Comparisons S C Number cards 0–10 Counters	Number Comparisons with Equations S C Number cards, 0–10 Counters Math notebooks
Homework	Homework 11 S C	Homework 12 S C	Homework 13 S C

Lesson Series 3 – Day 1

Core Math	Quantities can be compared and the difference can be determined using subtraction.
Description	Students solve comparison problems using the information from the Cookie Monster problem.
CCSS-M Standard(s)	Operations and Algebraic Thinking Represent and solve problems involving addition and subtraction. 1.OA.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
Resources and Setup	<ul style="list-style-type: none"> • Cookies Left BLM (from Expert Task), 1 per pair of students • Counters • Cookie Comparisons S C
Homework	Homework 11 S C

Math Talk



Expression Talk Set 6

Question: What is ____? What strategy did you use?		
$8 + 1$	$8 + 2$	$9 + 2$

Lesson Plan	
LAUNCH	Show students the Cookies Left BLM from the Expert Task. Remind students of the quantities in the picture. Make a chart of the quantities if needed, for example:
1	Row 1 9 Row 2 11 Row 3 6 Ask students if the same number of cookies were left in each row. Ask which row had the most left and how they know. Ask if we can figure out the difference between the number of cookies in each row. Tell students they may use counters to represent the cookies in each row if they like, then they should draw the cookies on the Cookie Comparison page.
EXPLORE	Have students work with a partner to complete the Cookie Comparisons pages. Allow each partnership to have a copy of the Cookies Left BLM and counters. Each student should record their own work, but work with a partner to be sure that their work is accurate.
2	Watch for students who line up the rows to determine which row has more.

	<p>Guiding Questions:</p> <ul style="list-style-type: none"> • <i>How many cookies should you draw in this row?</i> • <i>How can we compare these two quantities?</i> • <i>What is different about the quantities?</i> • <i>What is the difference between the two rows?</i> <p>→ Key Math to Observe</p> <ul style="list-style-type: none"> • Do students line up the counters or the cookies in their drawings to compare them? • Do students see the difference as the “extra” cookies in one row? • Are students able to accurately recreate the counters in their drawings? • How are students working with each other?
<p>SUMMARIZE</p> <p>3</p>	<p>→ Core Math to Emphasize</p> <ul style="list-style-type: none"> • Quantities can be compared and the difference can be determined using subtraction. <p>Share two to three student examples. Be sure to show some that line up the quantities in the rows. Have students explain how they know what is the same and what is different about the rows.</p> <p>Have a discussion about how the matched counters appear in both rows, so the quantity is the same. The difference is the “extra” counters in one of the rows. For example, rows 1 and 2 both have 1, 2, 3 cookies, all the way up to 9 cookies. But row 2 has 2 more cookies that aren’t matched. This unmatched quantity is the difference between the two rows. Tell students when they can line up the quantities, we call it a “compare” problem.</p> <p>Ask students what they notice and have them write or draw their response on the Cookie Comparisons student page.</p> <div data-bbox="719 1083 1461 1255"> </div> <hr/> <div data-bbox="423 1331 516 1440"> </div> <p>Notebook Prompt Use the Cookie Comparisons student page for the notebook prompt today.</p>

Notes	Universal Support
<ul style="list-style-type: none"> • Students may not line up their quantities 	<ul style="list-style-type: none"> • Provide 1” graph paper to line up the counters. Or use linking cubes and compare the length of the trains.
Extensions	Students draw or write how they can find out which is more with any 2 quantities.

Lesson Series 3 – Day 2

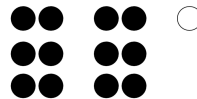
Core Math	Quantities can be compared and how many more or fewer can be determined with a visual model. A subtraction equation can represent the situation.
Description	Students compare quantities represented by number cards and determine which quantity is more and how much more.
CCSS-M Standard(s)	Operations and Algebraic Thinking Add and subtract within 20. 1.OA.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 $6 + 6 + 1 = 12 + 1 = 13$).
Resources and Setup	<ul style="list-style-type: none"> • Number Comparisons S C - plus extra copies as needed • Number cards 0–10 • Counters
Homework	Homework 12 S C

Math Talk



Dot Talk 6

Question: What do you see? What equation would match the picture? Could a subtraction equation match the picture?



Lesson Plan

Note: Fewer is the correct word to use when comparing countable items, such as cookies or linking cubes (I have fewer cookies than you). Less is the correct word when comparing continuous items or collective nouns such as milk or candy (I have less milk than you. I have fewer pieces of candy. I have less candy.) Students were exposed to “fewer” in this context in Kindergarten.

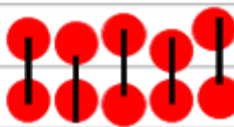
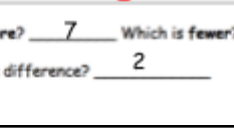
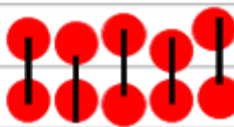
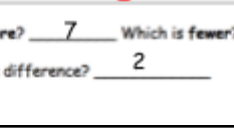
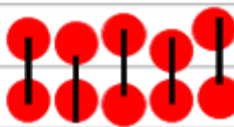
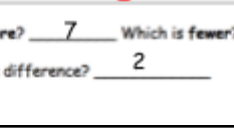






LAUNCH


Remind students of the work they did on Day 1 with the cookies. Tell them that today they are going to play a comparison game.

1

Demonstrate how to play the game with a student partner:

- Shuffle the cards and place them face down between the partners.
- Both partners take a card and turn it over.
- Each partner counts out counters to match the number on their card. The counters should be arranged so that students can compare the quantities.

	<ul style="list-style-type: none">Students use the following sentence frames to tell their partner what they see:<ul style="list-style-type: none">My card is _____. _____ is more than _____.My card is _____. _____ is less than _____.Students record both the numbers and draw the counters on the Number Comparisons Student page.Students work together to figure out the difference between their quantities and record it. Students then tell each other how many more or fewer each number is with the following sentence frames:<ul style="list-style-type: none">___ is ___ more than ____.___ is ___ fewer than ____.Students return their cards to the bottom of the pile and play again.	<div><p>Numbers</p><table><tr><td>5</td><td></td></tr><tr><td>7</td><td></td></tr></table><p>Which is more? <u>7</u> Which is fewer? <u>5</u></p><p>What is the difference? <u>2</u></p></div>	5		7							
5												
7												
EXPLORE	Have students play as long as time and attention allow. Consider copying extra pages if you expect students to play more than four rounds.											
2	<p>Guiding Questions</p> <ul style="list-style-type: none">Which number is more?Which number is less?What's the difference?How do you know? <p>→ Key Math to Observe</p> <ul style="list-style-type: none">Do students compare the quantities directly or do they use known facts?Are students counting up or counting back or using another strategy?Are students counting the counters that both quantities have in common, or do they look only at the difference?											
SUMMARIZE	<p>→ Core Math to Emphasize</p> <ul style="list-style-type: none">Quantities can be compared and the difference can be determined using subtraction.											
3	<p>Choose one of the problems a student partnership completed and display it for the whole class to see. Create a tape diagram by drawing boxes around the counters. Add the question mark to mark what we are trying to find out. You may wish to draw a vertical line to show where the two quantities are the same.</p> <p>Ask students how they might draw the tape diagram if they didn't want to draw all the counters. Students may say that you could draw the boxes without the counters in them. Draw the tape diagram, following student instruction as much as possible. Save the representation as a model for Day 3.</p>	<div><p>Numbers</p><table><tr><td>5</td><td></td><td>?</td></tr><tr><td>7</td><td></td><td></td></tr></table></div> <div><table><tr><td>5</td><td>?</td></tr><tr><td>7</td><td></td></tr></table></div>	5		?	7			5	?	7	
5		?										
7												
5	?											
7												
Ask students, <i>What equation can we write to find the difference?</i> Students may say, $5 + ?$												

	<p>= 7 or $7 - 5 = ?$ Accept both replies and have students explain their thinking. Ask questions such as <i>Where is the 5 in the tape diagram? In the picture?</i> to have students connect the numbers in the equations with the numbers in the drawing and the tape diagram.</p> <hr/> <div>  <p>Notebook Prompt Draw or write what you learned today.</p> </div> <hr/>
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Notes	Universal Support
<ul style="list-style-type: none"> Students may struggle to line up the counters to determine which quantities match. 	<ul style="list-style-type: none"> Provide 1" grid paper to help students line up their counters.

Extensions	Have students identify which problems create the smallest differences and which ones create the largest differences. Have students look for a pattern that will tell them when they will get the smallest and largest differences.
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Lesson Series 3 – Day 3

Core Math	Quantities can be compared and the comparison can be represented with a tape diagram and an equation. Subtraction can be used to solve the problem.
Description	Students represent a comparison between two numbers with a tape diagram and find the difference using subtraction.
CCSS-M Standard(s)	Operations and Algebraic Thinking Add and subtract within 20. 1.OA.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 $6 + 6 + 1 = 12 + 1 = 13$).
Resources and Setup	<ul style="list-style-type: none"> • Number Comparisons with Equations S C - plus extra copies as needed • Number cards, 0-10 • Counters
Homework	Homework 13 S C

Math Talk



Expression Talk Set 7

Question: What is ____? What strategy did you use?

$4 + 4$

$5 + 4$

$4 + 5$

Lesson Plan

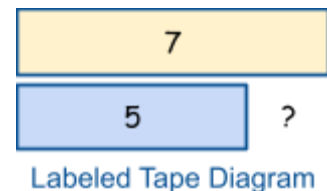
LAUNCH


1

Remind the students of the game they played on Day 2 and how they drew a tape diagram to represent their problem. Refer to the diagram as needed. Tell them they are going to play the game again today and after they count out the counters, they should try to draw a tape diagram of their comparisons.

Remind them of how to play the game:

- Both partners take a card and turn it over.
- Each partner counts out counters to match the number on their card. The counters should be arranged so that students can compare the quantities.
- Students then choose to draw the counters onto the student page and draw a box around them, or just draw the labeled tape diagram.
- Students should then write an equation to match the situation and find the difference.




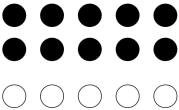
	<p>Remind students of the sentences they should use with their partners.</p> <ul style="list-style-type: none"> ○ My card is _____. _____ is more than _____. ○ My card is _____. _____ is less than _____. ○ The difference is _____.
EXPLORE	<p>Have students play as long as time and attention allow. Consider making extra copies of the student pages for students who have time to play more.</p>
2	<p>Guiding Questions</p> <ul style="list-style-type: none"> • Which number is more? • Which number is less? • What's the difference? • How do you know? <p>→ Key Math to Observe</p> <ul style="list-style-type: none"> • Do students draw the counters or just the tape diagram? • Are students counting up or counting back or using another strategy? • Do students match the counters that are the same in both quantities to help them find the difference?
SUMMARIZE	<p>→ Core Math to Emphasize</p> <ul style="list-style-type: none"> • Quantities can be compared and the comparison can be represented with a tape diagram and an equation. Subtraction can be used to solve the problem. <p>Have two to three students share their drawings, tape diagrams, and/or equations. Have students connect the parts of the equations with the tape diagram or drawing. Ask the students why they can find the difference between the two quantities with subtraction. Students may say that they are taking away the part that is the same in both quantities, that taking away the smaller quantity from the larger one tells you what is different, or that you don't want to count the part that is the same in the quantities so you take that away. Accept all replies.</p> <hr/> <div>  <p>Notebook Prompt Draw two things you can compare.</p> </div> <hr/>
3	


Notes	Universal Support
<ul style="list-style-type: none"> • Students may struggle to create an equation to match the picture or tape diagram. 	<ul style="list-style-type: none"> • This is a new and difficult concept. Allow students to struggle with the concepts and be unsuccessful for a while.


Extensions	Have students find equations that have the same difference. Can they find a pattern?
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Milestone Task

Core Math	Some real-life situations can be solved with subtraction. The strategy used to solve the problem depends on the numbers involved.
Description	Students solve a word problem involving subtraction and decide which strategy to use to solve it.
CCSS-M Standard(s)	<p>Operations and Algebraic Thinking</p> <p>Represent and solve problems involving addition and subtraction.</p> <p>1.OA.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.</p> <p>Add and subtract within 20.</p> <p>1.OA.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 $6 + 6 + 1 = 12 + 1 = 13$).</p>
Resources and Setup	<ul style="list-style-type: none"> Pickles BLM S C, 1 per student Pickles Three Read BLM S C, 1 copy for projection Pickles Three Read Picture BLM, 1 copy for projection Pickles Answer Guide Teacher Pickles Rubric Teacher Previously used math tools and manipulatives
Homework	Homework 14 S C

Math Talk	Dot Talk 7
	<p>Question: What do you see? What equation would match the picture? Could a subtraction equation match the picture?</p> <div style="text-align: center;">  </div>

Lesson Plan	
LAUNCH	<p>Tell students that they will be solving a math story and that the class will be using the Three Read Protocol to help everyone understand the math story. For more information on the Three Read Protocol see http://www.sfusdmath.org/3-read-protocol.html.</p> 

1	Start with, <i>Min loves pickles. There were 17 pickles in a jar. Min ate 9 for a snack.</i> Use the question <i>How many pickles were left in the jar?</i> or any student-generated question that is similar. Allow students to use any tools or manipulatives they have been using throughout the unit.
EXPLORE	Have students work independently on the Milestone Task.
2	<p>→ Key Math to Observe</p> <ul style="list-style-type: none"> • How are students making sense of the task? • What strategies are students using? • How are students using manipulatives and tools? <p>Guiding Questions:</p> <ul style="list-style-type: none"> • <i>What are you doing?</i> • <i>What do you know about the problem?</i> • <i>Why does this make sense?</i> • <i>Where did you get stuck?</i> • <i>What if you used ___ to act out this problem?</i>
SUMMARIZE	→ Core Math to Emphasize
3	<ul style="list-style-type: none"> • Some real-life situations can be solved with subtraction. The strategy used to solve the problem depends on the numbers involved. <p>Debrief the task by having students share strategies they used to solve the task.</p> <hr/> <div data-bbox="423 1066 516 1178">  </div> <p>Notebook Prompt Write or draw what you learned about subtraction.</p> <hr/>

Notes	Universal Support
<ul style="list-style-type: none"> • Students may add rather than subtract. 	<ul style="list-style-type: none"> • Students may solve the problem as a missing addend problem, which is entirely appropriate. Encourage these students to also include a subtraction equation for the problem. • Have students act out the problem to help them determine what action is happening in the situation.