ENGLISH

K–5 Math

EDITION 1

Grade 1 ADSY

ADDITIONAL DAYS SCHOOL YEAR (ADSY)

TEACHER EDITION

Grade 1

ADSY

Acknowledgment

Thank you to all the Texas educators and stakeholders who supported the review process and provided feedback. These materials are the result of the work of numerous individuals, and we are deeply grateful for their contributions.

Notice

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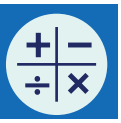

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K-5 MATH

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OVERVIEW

This Additional Days School Year (ADSY) module provides up to 30 days of instruction in addition to the instructional days already included in the regular academic calendar. The module consists of 25 lessons, 1 pre-test, 1 post-test, and 3 days reserved for flexible use (i.e., flex days) as determined by local decision. The instructional days can be scheduled at any point throughout the school year, including as a block at the end of the year or intermittently throughout the year. Research by RAND suggests that increasing the number of instructional days leads to academic achievement.[1]

ADSY lessons are supplemental to the core instructional materials, and topics can be taught independently based on students' needs. Each ADSY topic is aligned to at least one module within the core instructional materials. Using pre-test or other relevant data, examples of ways to implement ADSY lessons and assessments include, but are not limited to:

- Facilitate only Topic B as additional practice and support after teaching the aligned module in the core instructional materials. Administer the post-test items aligned to Topic B to evaluate student progress.
- Facilitate both Topics A and C. Administer the post-test items aligned to Topics A and C to monitor student progress and adjust instruction as needed.
- Facilitate all topics over the summer as a review. Administer the entire pre- and post-test for all topics.
- Facilitate one or more topics over the summer as review or to prepare for upcoming content. Administer one or more relevant sections of the post-test.

In Topic A, students represent word problems involving addition and subtraction of whole numbers up to 20 using concrete and pictorial models and number sentences **(1.5D)**. Students then use objects and pictorial models to solve world problems involving joining, separating, and comparing sets within 20. There may be unknowns in any one of the terms in the problems **(1.3B**). Finally, students generate and solve problem situations when given a number sentence involving addition or subtraction of numbers within 20 **(1.3F)**.

Topic B begins with students using objects, pictures, and expanded and standard forms to represent numbers up to 120 **(1.2C)**. Students apply their place value understanding and knowledge of number lines to order numbers up to 120 **(1.2F)**. Then, they use concrete and pictorial models to determine the sum of a multiple of ten and a one-digit number in problems up to 99 **(1.3A)**. Lastly, students use number relationships to count by twos, fives, and tens to determine the value of a collection of pennies, nickels, and/or dimes **(1.4C)**.

In Topic C, students classify and sort regular and irregular two-dimensional shapes based on attributes using informal geometric language **(1.6A)**. Next, they use measuring tools to measure the length of objects to reinforce the continuous nature of linear measurement **(1.7A)**. Finally, students tell time to the hour and half hour using analog and digital clocks **(1.7E)**.

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[1] McCombs, Jennifer Sloan, John F. Pane, Catherine H. Augustine, Heather L. Schwartz, Paco Martorell, and Laura Zakaras, Ready for Fall? Near-Term Effects of Voluntary Summer Learning Programs on Low-Income Students' Learning Opportunities and Outcomes. Santa Monica, CA: RAND Corporation, 2014. https://www.rand.org/pubs/research_reports/RR815.html. Also available in print form.

All ADSY lessons follow a structure students are already familiar with, including Fluency Practice, an Application Problem, Concept Development, Problem Set, Student Debrief and Exit Ticket. Answers for each Application Problem, Problem Set, and Exit Ticket are included in the Answer Key for the lesson, with some lessons also including sample student work.

TEKS Mathematical Process Standards

The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

- **1.1A** apply mathematics to problems arising in everyday life, society, and the workplace;
- **1.1B** use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;
- **1.1C** select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;
- **1.1D** communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;
- **1.1E** create and use representations to organize, record, and communicate mathematical ideas;
- **1.1F** analyze mathematical relationships to connect and communicate mathematical ideas;
- **1.1G** display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

The TEKS Mathematical Process Standards are woven throughout the lessons in all three topics, giving students multiple opportunities to engage in the mathematics through problem solving, using a variety of tools and strategies, and explaining or showing what they know and can do. For example, Topic A has a focus on **1.1D** and **1.1E** as students create and use representations, including symbols, diagrams, graphs, and academic language, to communicate mathematical ideas. In addition, Topic B has an emphasis on **1.1C** as students select and use a variety of tools and representations to solve problems.

Overview of Module Topics and Lesson Objectives

TEKS	ELPS	Topics and Objectives			Days
			Pre-Test: Topics A–C		1
1.3B **1.3F** **1.5D**	1.D 1.F 2.C 2.I 3.B 3.D 3.E 3.G 3.H 4.D 4.F 4.G	A	**Problem Solving**		10
			Lesson 1:	Represent addition word problems within 20 using concrete models.	
			Lesson 2:	Represent addition word problems within 20 using pictorial models and number sentences.	
			Lesson 3:	Use objects and pictures to solve problems involving joining sets with 20 and unknowns as any one of the terms in the problem.	
			Lesson 4:	Represent subtraction word problems within 20 using concrete models.	
			Lesson 5:	Represent subtraction word problems within 20 using pictorial models and number sentences.	
			Lesson 6:	Use objects and pictures to solve problems involving separating sets within 20 and unknowns as any one of the terms in the problem.	
			Lesson 7:	Use objects and pictures to solve problems involving comparing sets within 20 and unknowns as any one of the terms in the problem.	
			Lesson 8:	Use objects and pictures to solve problems involving joining, separating, and comparing sets within 20 and unknowns as any one of the terms in the problem.	
			Lessons 9–10:	Generate and solve problem situations when given an addition or subtraction number sentence within 20.	

TEKS	ELPS		Topics and Objectives		Days
1.2C **1.2F** **1.3A** **1.4C**	1.D 1.F 2.C 2.I 3.B 3.D 3.E 3.G 3.H 4.D 4.F 4.G	B	**Develop and Apply Place Value Understanding**		8
			Lesson 11:	Represent numbers within 120 using objects and pictures.	
			Lesson 12:	Represent numbers within 120 using standard and expanded forms.	
			Lesson 13:	Order numbers within 120 using place value.	
			Lesson 14:	Order numbers within 120 using open number lines.	
			Lesson 15:	Determine the sum of a multiple of 10 and a one-digit number using concrete models.	
			Lesson 16:	Determine the sum of a multiple of 10 and a one-digit number using pictorial models.	
			Lesson 17:	Count by twos to determine the value of a collection of pennies.	
			Lesson 18:	Count by fives and tens to determine the value of a collection of pennies, nickels, and/or dimes.	
1.6A **1.7A** **1.7E**	1.D 1.F 2.C 2.I 3.B 3.D 3.E 3.G 3.H 4.D 4.F 4.G	C	**Geometry and Measurement**		7
			Lesson 19:	Classify and sort regular two-dimensional shapes based on attributes using informal geometric language.	
			Lesson 20:	Classify and sort irregular two-dimensional shapes based on attributes using informal geometric language.	
			Lessons 21–22:	Measure the length of objects to reinforce the continuous nature of linear measurement.	
			Lesson 23:	Tell time to the hour using analog clocks.	
			Lesson 24:	Tell time to the half hour using analog clocks.	
			Lesson 25:	Tell time to the hour and half hour using digital clocks.	
			Flexible instructional days (as determined by local decision)		3
			Post-Test: Topics A–C		1
Total Number of Instructional Days					**30**

Pre-Test and Rubric

Grade 1

ADSY

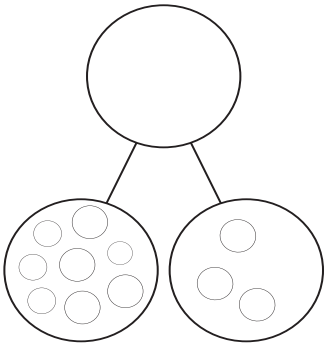
Name _____ Date _____

Topic A: Problem Solving

Circle the letter of the correct answer.

1. Sofia has 8 books. Javier has 5 books. Which number bond can be used to find the total number of books that Sofia and Javier have altogether?

A



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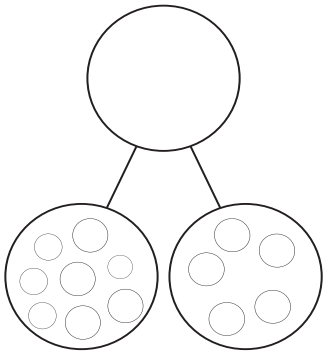

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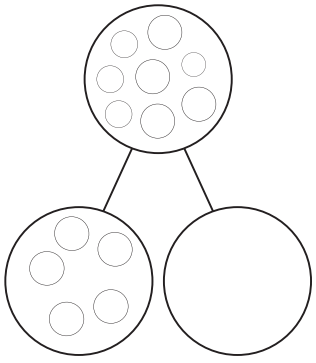

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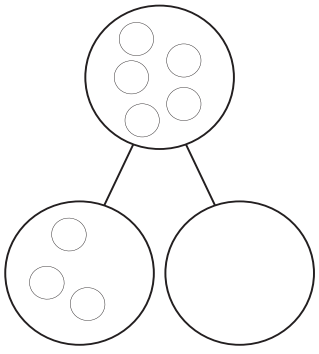
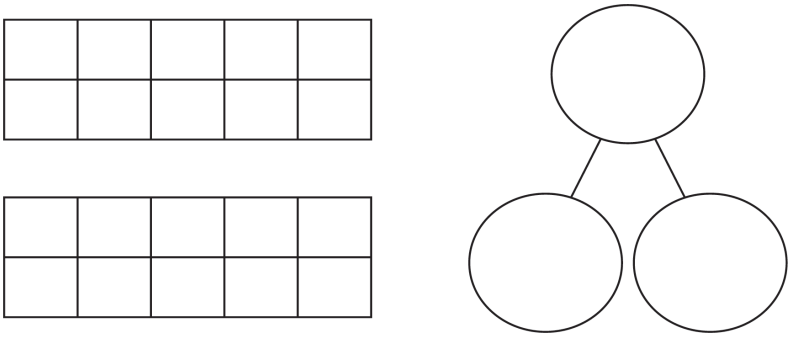


2. Marta has 18 tickets for the carnival. She uses 6 tickets to play games. She has 12 tickets left to go on rides. Write a subtraction number sentence to match this problem.

3. In the morning, a group of deer are resting in the shade. Later in the day, 5 more deer join them. Now there are 11 deer resting in the shade. How many deer were resting in the shade in the morning? Use the ten-frames or number bond to solve the problem. Write your answer on the blank line.

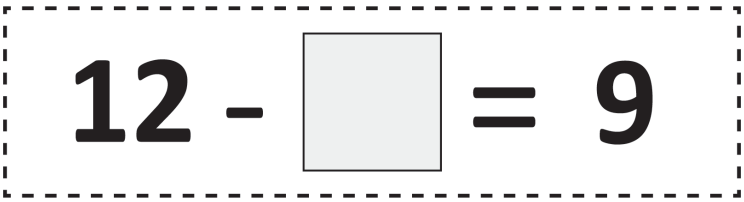


In the morning there were _____ deer resting in the shade.

4. At the zoo, there are 15 beavers and 20 parrots. How many more parrots are there than beavers? Draw pictures to solve the problem. Write your answer on the blank line.

There are _____ more parrots than beavers.

5. Ty has this number sentence.



He writes a problem to match:

Ty bakes 12 muffins. Then he eats some of the muffins. Now he has 9 muffins left.

How many muffins does Ty eat?

Solve the problem. Write your answer on the blank line. Show your work using pictures, numbers, or words.

Ty eats _____ muffins.

Topic B: Develop and Apply Place Value Understanding

1. Make a place value drawing to show 115. If it helps, first build 115 using ten-sticks and loose cubes.

2. Write each number on the place value chart or make place value drawings to represent each number. Then write the numbers 104, 47, 40, and 74 in order from least to greatest.

	Hundreds	Tens	Ones
104			
47			
40			
74			

_____ _____ _____ _____

3. Sarah has 8 paper cups for a party. She buys 40 more paper cups from the store. How many paper cups does Sarah have now? Make a place value drawing or use an open number line to show your work. Write your answer on the blank line.

Sarah now has _____ paper cups.

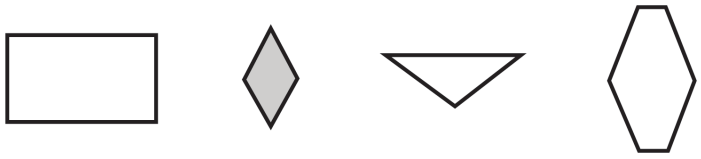
4. Circle groups of two. Then count by twos to find the value of these coins. Write the value of these coins on the blank line.

The value is _____ cents.

Topic C: Geometry and Measurement

Circle the letter of the correct answer.

1. A group of four shapes is shown.



Which statement about all of the shapes in this group appears to be true?

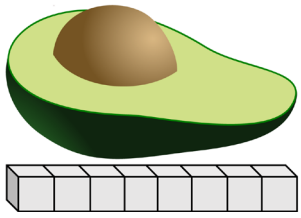
A They all have 4 sides and 4 corners.

B They all have square corners.

C They all have straight sides.

D They all have equal sides.

2. Lydia uses cubes to measure the length of an avocado as shown.

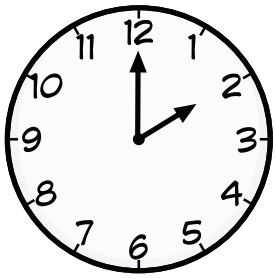


How long is the avocado? Write your answer on the blank line. Then explain how you know.

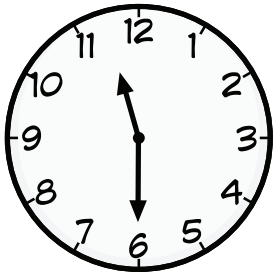
The avocado is _____ cubes long.

Explanation:

3. Draw a line from each clock to its matching time.



6:00



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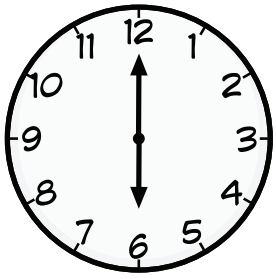

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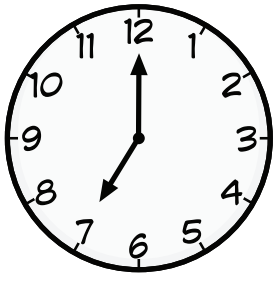


2:00

Standards Addressed

Numbers and Operations

The student is expected to:

1.2C use objects, pictures, and expanded and standard forms to represent numbers up to 120;

1.2F order whole numbers up to 120 using place value and open number lines;

1.3A use concrete and pictorial models to determine the sum of a multiple of ten and a one-digit number in problems up to 99;

1.3B use objects and pictorial models to solve word problems involving joining, separating, and comparing sets within 20 and unknowns as any one of the terms in the problem such as 2 + 4 = ___; 3 + ___ = 7; and 5 = ____ − 3;

1.3F generate and solve problem situations when given a number sentence involving addition or subtraction of numbers within 20;

1.4C use relationships to count by twos, fives, and tens to determine the value of a collection of pennies, nickels, and/or dimes.

Algebraic Reasoning

The student is expected to:

1.5D represent word problems involving addition and subtraction of whole numbers up to 20 using concrete and pictorial models and number sentences.

Geometry and Measurement

The student is expected to:

1.6A classify and sort regular and irregular two-dimensional shapes based on attributes using informal geometric language;

1.7A use measuring tools to measure the length of objects to reinforce the continuous nature of linear measurement;

1.7E tell time to the hour and half hour using analog and digital clocks.

Evaluating Student Learning Outcomes

A Progression Toward Proficiency chart is provided for both the Pre-Test and Post-Test. This chart describes steps that illuminate the gradually increasing understandings that students develop on their way to proficiency. In this chart, progress is presented from left to right. The learning goal for students is to exhibit evidence of solid reasoning. The progression helps teachers and students identify and celebrate what students can do now and what they need to work on next. Teachers can also choose to use an assessment in a summative manner by following the scoring guidance provided previously in the Approach to Assessments front matter.

A Progression Toward Proficiency				
Assessment Task Item and Standards Addressed	**Little evidence of reasoning without a correct answer.**	**Evidence of some reasoning without a correct answer.**	**Evidence of some reasoning with a correct answer or evidence of solid reasoning with an incorrect answer.**	**Evidence of solid reasoning with a correct answer.**
Topic A				
1 **1.5D**	Option A is incorrect. The student may or may not understand how to represent word problems involving addition of whole numbers up to 20 using number bonds. The student was able to represent one amount (8) in one part of the number bond but may have misinterpreted the word problem as a subtraction situation.			
	Option B is correct.			
	Option C is incorrect. The student may or may not understand how to represent word problems involving addition of whole numbers up to 20 using number bonds. The student was able to represent one amount (5) in one part of the number bond but may not understand how part–part–whole relationships are represented in number bonds, misinterpreting the other amount (8) as the total.			
	Option D is incorrect. The student may or may not understand how to represent word problems involving addition of whole numbers up to 20 using number bonds. The student was able to show the one amount (5) but may not understand how part–part–whole relationships are represented in number bonds.			

A Progression Toward Proficiency				
2 **1.5D**	The student does not show understanding of representing word problems using number sentences.	The student shows some understanding of representing word problems using number sentences but is not able to write a valid equation or expression.	The student writes a correct addition equation, such as 6 + 12 = 18 (or 18 = 6 + 12). OR The student shows some understanding of representing word problems using number sentences by writing an expression, such as 18 − 6.	The student writes a correct subtraction equation, such as 18 − 6 = 12 (or 12 = 18 − 6).
3 **1.3B**	The student does not demonstrate understanding of using pictorial models to represent 5 + 6 = 11 and is not able to solve word problems involving joining sets within 20.	The student shows some understanding of using pictorial models to represent 5 + 6 = 11 but is not able to solve word problems involving joining sets within 20.	The student has the correct answer but has an incomplete or partially correct pictorial model. OR The student has the correct answer but shows a different strategy other than drawing a pictorial model (e.g., explains with words). OR The student has a complete and correct pictorial model to show 5 + 6 = 11 but does not write the correct answer.	The student: ▪ Draws a complete and correct pictorial model to show 5 + 6 = 11. Accept various representations such as 5 circles or pictures on the ten-frames, with 6 more added on to make a total of 11, or a number bond drawing that shows a total of 11, broken into two parts (5 and 6). ▪ Correctly answers 6.

A Progression Toward Proficiency				
4 **1.3B**	The student does not demonstrate understanding of using pictorial models to represent and solve word problems involving comparing sets within 20.	The student shows some understanding of using pictorial models to represent and solve word problems involving comparing sets within 20.	The student has the correct answer but has an incomplete or partially correct pictorial model. OR The student has the correct answer but shows a different strategy other than drawing a pictorial model (e.g., explains with words). OR The student has a complete and correct pictorial model to show 20 − 15 = 5 but does not write the correct answer.	The student: ▪ Draws a complete and correct pictorial model to show 20 − 15 = 5 or 15 + 5 = 20. Accept various representations, such as a row of 15 circles and a row of 20 circles, with lines matching 15 pairs of circles. ▪ Correctly answers 5.
5 **1.3F**	The student uses incorrect reasoning and is unable to answer the question.	The student uses incorrect reasoning that leads to an incorrect answer.	The student uses correct reasoning but makes a calculation error that leads to an incorrect answer.	The student: ▪ Uses a valid strategy to solve the subtraction problem. ▪ Correctly answers 3.

A Progression Toward Proficiency				
Topic B				
1 **1.2C**	The student does not demonstrate understanding of making place value drawings to represent numbers up to 120.	The student has one of the place values correct.	The student has two of the place values correct.	The student draws a correct and complete place value drawing to represent 115. Accept various representations, such as 1 square to represent 1 hundred, 1 stick to represent 1 ten, and 5 circles to represent 5 ones.
2 **1.2F**	The student does not demonstrate understanding of ordering whole numbers up to 120 using place value.	The student shows some understanding of ordering whole numbers up to 120 using place value.	The student correctly orders the numbers but has an incomplete or partially correct place value chart. OR The student has a complete and correct place value chart but does not correctly order the numbers.	The student: ▪ Correctly completes the place value chart with numbers or place value drawings. ▪ Correctly orders the numbers: 40, 47, 74, 104.

A Progression Toward Proficiency				
3 **1.3A**	The student does not demonstrate understanding of using pictorial models to solve addition problems involving a multiple of 10 and a one-digit number.	The student shows some understanding of using pictorial models to solve addition problems involving a multiple of 10 and a one-digit number but is not able to solve the problem.	The student has the correct answer but has an incomplete or partially correct place value chart or open number line to support their work. OR The student has a complete and correct place value chart or open number line but does not write the correct answer.	The student: ▪ Demonstrates understanding of using either a place value drawing or an open number line to solve the addition problem. ▪ Correctly answers 48.
4 **1.4C**	The student does not demonstrate understanding of using relationships to count by twos to determine the value of a collection of pennies.	The student shows some understanding of using relationships to count by twos but is not able to determine the value of a collection of pennies.	The student has the correct answer but only partially circles groups of two pennies. OR The student completely and correctly circles groups of two pennies but does not write the correct answer.	The student: ▪ Correctly circles 9 groups of two pennies. ▪ Correctly answers 18.

A Progression Toward Proficiency				
Topic C				
1 **1.6A**	Option A is incorrect. The student may or may not understand how to sort irregular two-dimensional shapes based on attributes using informal geometric language. The student may not know the meaning of sides and/or corners, or the student may have only looked at the first two shapes in the group.			
	Option B is incorrect. The student may or may not understand how to sort irregular two-dimensional shapes based on attributes using informal geometric language. The student may not know the meaning of square corners, or the student may have only looked at the first shape in the group.			
	Option C is correct.			
	Option D is incorrect. The student may or may not understand how to sort irregular two-dimensional shapes based on attributes using informal geometric language. The student may not know the meaning of equal sides, or the student may have only looked at the second shape in the group.			
2 **1.7A**	The student does not demonstrate understanding of using cubes to measure the length of objects.	The student shows some understanding of using cubes to measure the length of objects but is not able to measure the object.	The student has the correct answer but has an incomplete or partially correct explanation. OR The student has a complete and correct explanation but does not write the correct answer.	The student: ▪ Demonstrates understanding of using cubes to measure the length of objects, such as lining up the cubes with no gaps from one end of the object to the other, then counting the number of cubes used. ▪ Correctly answers 8.

A Progression Toward Proficiency				
3 **1.7E**	The student correctly matches 0 pairs of clocks.	The student correctly matches 1 or 2 pairs of clocks.	The student correctly matches 3 pairs of clocks.	The student correctly matches all 4 pairs of clocks: 2:00, 11:00, 6:00, and 7:00.

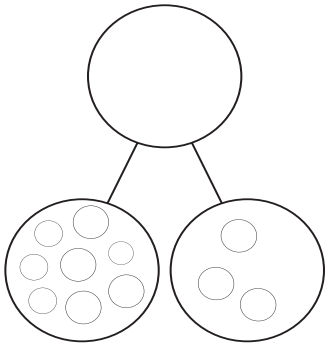
Name _____ Date _____

Topic A: Problem Solving

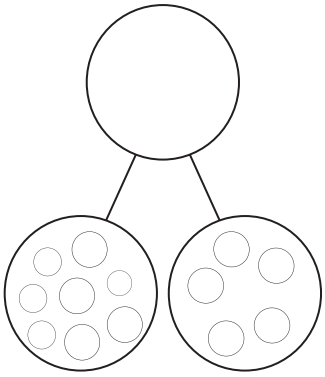
Circle the letter of the correct answer.

1. Sofia has 8 books. Javier has 5 books. Which number bond can be used to find the total number of books that Sofia and Javier have altogether?

A



B



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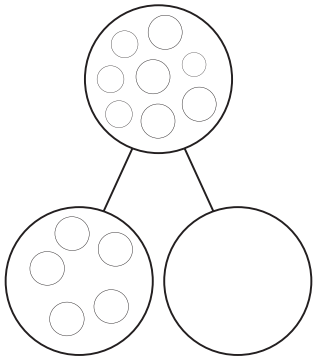

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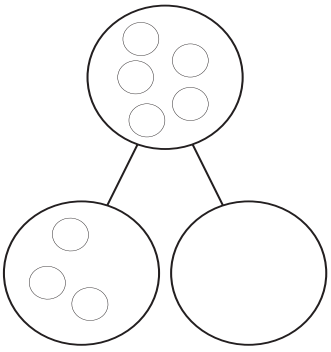
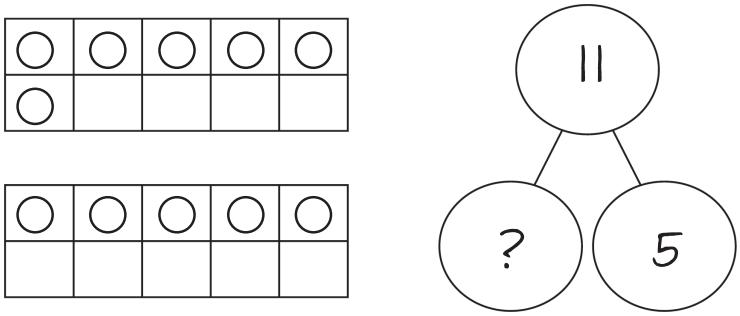


2. Marta has 18 tickets for the carnival. She uses 6 tickets to play games. She has 12 tickets left to go on rides. Write a subtraction number sentence to match this problem.

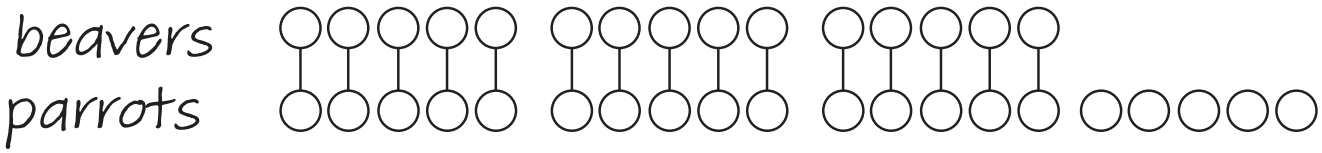
$$18 - 6 = 12$$

3. In the morning, a group of deer are resting in the shade. Later in the day, 5 more deer join them. Now there are 11 deer resting in the shade. How many deer were resting in the shade in the morning? Use the ten-frames or number bond to solve the problem. Write your answer on the blank line.



In the morning there were 6 deer resting in the shade.

4. At the zoo, there are 15 beavers and 20 parrots. How many more parrots are there than beavers? Draw pictures to solve the problem. Write your answer on the blank line.



There are 5 more parrots than beavers.

5. Ty has this number sentence.

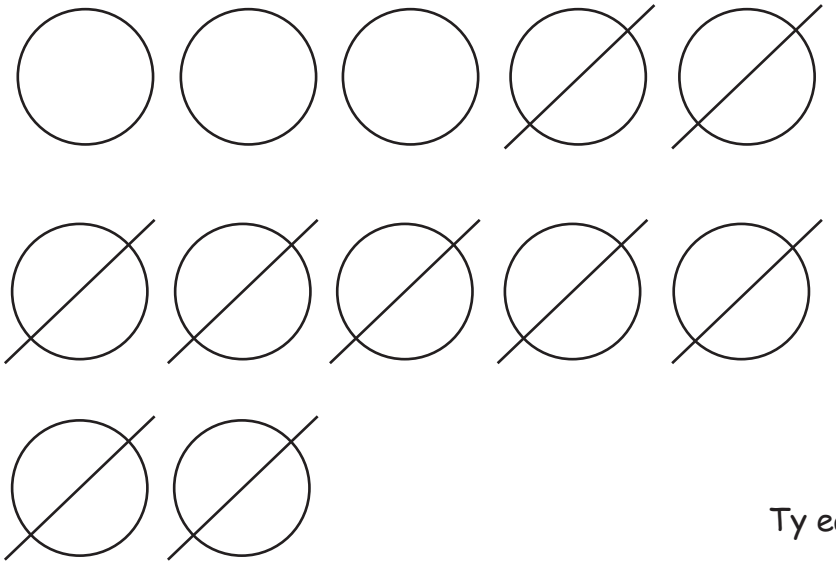
$$12 - \square = 9$$

He writes a problem to match:

Ty bakes 12 muffins. Then he eats some of the muffins. Now he has 9 muffins left.

How many muffins does Ty eat?

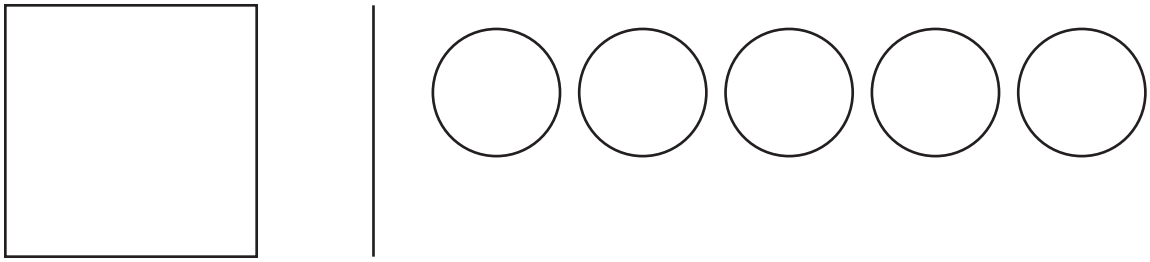
Solve the problem. Write your answer on the blank line. Show your work using pictures, numbers, or words.



Ty eats 3 muffins.

Topic B: Develop and Apply Place Value Understanding

1. Make a place value drawing to show 115. If it helps, first build 115 using ten-sticks and loose cubes.

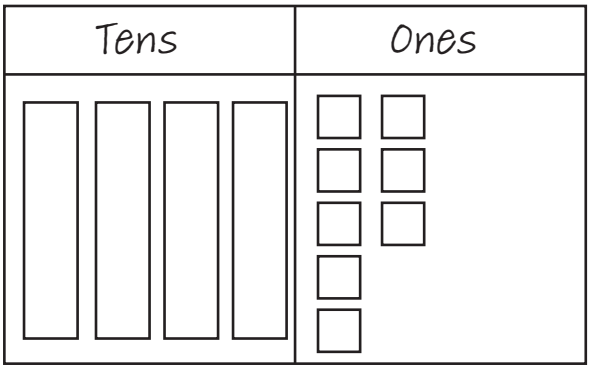


2. Write each number on the place value chart or make place value drawings to represent each number. Then write the numbers 104, 47, 40, and 74 in order from least to greatest.

	Hundreds	Tens	Ones
104	100		1 1 1 1
47		10 10 10 10	1 1 1 1 1 1 1
40		10 10 10 10	
74		10 10 10 10 10 10 10	1 1 1 1

40 47 74 104

3. Sarah has 8 paper cups for a party. She buys 40 more paper cups from the store. How many paper cups does Sarah have now? Make a place value drawing or use an open number line to show your work. Write your answer on the blank line.



4 tens 8 ones is 48.

Sarah now has 48 paper cups.

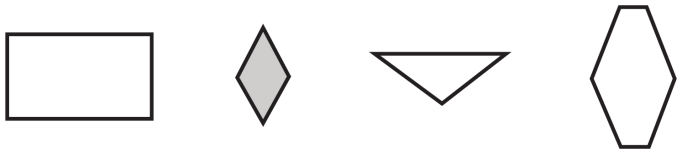
4. Circle groups of two. Then count by twos to find the value of these coins. Write the value of these coins on the blank line.

The value is 18 cents.

Topic C: Geometry and Measurement

Circle the letter of the correct answer.

1. A group of four shapes is shown.



Which statement about all of the shapes in this group appears to be true?

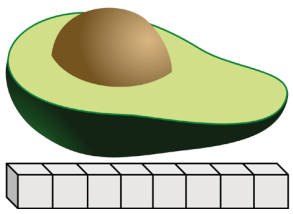
A They all have 4 sides and 4 corners.

B They all have square corners.

(**C**) They all have straight sides.

D They all have equal sides.

2. Lydia uses cubes to measure the length of an avocado as shown.



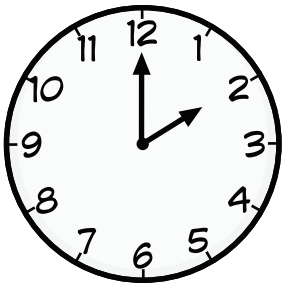
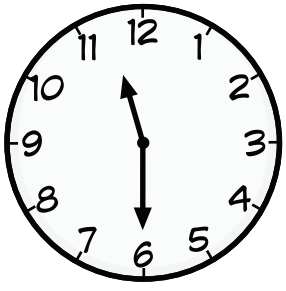
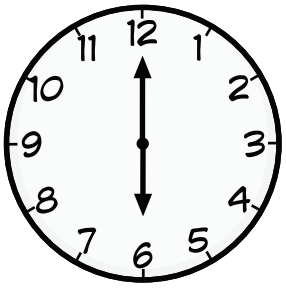
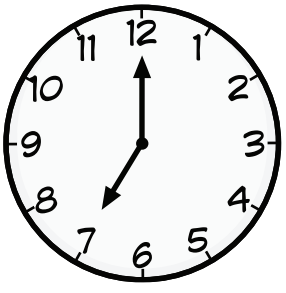
How long is the avocado? Write your answer on the blank line. Then explain how you know.

The avocado is ____8____ cubes long.

Explanation:

The cubes line up with the avocado with no gaps. I counted the number of cubes.

3. Draw a line from each clock to its matching time.

6:00

11:30

7:00

2:00

Topic A

Problem Solving

1.3B, 1.3F, 1.5D

Focus Grade Level Standards

Numbers and Operations

The student applies mathematical process standards to develop and use strategies for whole number addition and subtraction computations in order to solve problems. The student is expected to:

1.3B use objects and pictorial models to solve word problems involving joining, separating, and comparing sets within 20 and unknowns as any one of the terms in the problem such as 2 + 4 = [ ]; 3 + [ ] = 7; and 5 = [ ] − 3;

1.3F generate and solve problem situations when given a number sentence involving addition or subtraction of numbers within 20.

Algebraic Reasoning

The student applies mathematical process standards to identify and apply number patterns within properties of numbers and operations in order to describe relationships. The student is expected to:

1.5D represent word problems involving addition and subtraction of whole numbers up to 20 using concrete and pictorial models and number sentences.

Foundational Standards

The student is expected to:

K.3A	model the action of joining to represent addition and the action of separating to represent subtraction;
K.3B	solve word problems using objects and drawings to find sums up to 10 and differences within 10;
K.3C	explain the strategies used to solve problems involving adding and subtracting within 10 using spoken words, concrete and pictorial models, and number sentences;
1.3A	use concrete and pictorial models to determine the sum of a multiple of 10 and a one-digit number in problems up to 99;
1.3C	compose 10 with two or more addends with and without concrete objects;
1.3D	apply basic fact strategies to add and subtract within 20, including making 10 and decomposing a number leading to a 10;
1.3E	explain strategies used to solve addition and subtraction problems up to 20 using spoken words, objects, pictorial models, and number sentences;
1.5E	understand that the equal sign represents a relationship where expressions on each side of the equal sign represent the same value(s);
1.5F	determine the unknown whole number in an addition or subtraction equation when the unknown may be any one of the three or four terms in the equation;
1.5G	apply properties of operations to add and subtract two or three numbers.

Coherence

Module Connections

TEKS:	**1.3B**	Module 1: Sums and Differences to 10
		Module 2: Introduction to Place Value through Addition and Subtraction Within 20
		Module 3: Ordering and Comparing Length Measurements as Numbers
		Module 4: Place Value, Addition and Subtraction to 40
		Module 6: Place Value to 120, Comparison, Understanding Income with Addition and Subtraction to 100
	1.3F	Module 1: Sums and Differences to 10
		Module 2: Introduction to Place Value through Addition and Subtraction Within 20
		Module 4: Place Value, Addition and Subtraction to 40
	1.5D	Module 1: Sums and Differences to 10
		Module 2: Introduction to Place Value through Addition and Subtraction Within 20
		Module 3: Ordering and Comparing Length Measurements as Numbers
		Module 4: Place Value, Addition and Subtraction to 40
		Module 6: Place Value to 120, Comparison, Understanding Income with Addition and Subtraction to 100
Instructional Days:	10	

Explorations in Topic A include representing addition and subtraction word problems within 20 in Lessons 1–2 and 4–5, solving word problems in Lesson 3 and Lessons 6–8, and generating word problems in Lessons 9–10.

Lessons 1–2 begin with students representing word problems involving addition of numbers up to 20 using concrete and pictorial models **(1.5D)**. In Lesson 3, students use objects and pictures to solve problems involving joining sets with 20. Unknowns may be in any one of the terms within the problem **(1.3B)**. Students are encouraged to lean on their models when solving problems. This may include building a model to represent a *joining sets* problem, and then counting all items or counting on from one set.

Next, students move their focus to subtraction situations. In Lessons 4–5, they represent word problems involving subtraction of numbers up to 20 using concrete and pictorial models **(1.5D)**. Lessons 6–8 build on previous lessons as students use objects and pictorial models to solve word problems involving joining, separating, and comparing sets within 20 where unknowns may be any of one of the terms in the problem **(1.3B)**. Again, students lean on their models to find solutions. This may include representing a problem involving separating sets, and then counting back to solve, or representing a comparison problem by modeling both quantities, and then counting to find the difference between the two quantities.

Topic A culminates with students generating and solving problem situations when given a number sentence involving addition or subtraction of numbers within 20 **(1.3F)** in Lessons 9–10. Connecting math concepts to their own background knowledge and lived experiences enables students to deepen their understanding of addition and subtraction.

A Teaching Sequence Toward Proficiency of Problem Solving	
Objective 1:	**Represent word problems involving addition of numbers up to 20 using concrete and pictorial models.** **(Lessons 1–2)**
Objective 2:	**Use objects and pictures to solve problems involving joining sets with 20 and unknowns as any one of the terms in the problem.** **(Lesson 3)**
Objective 3:	**Represent word problems involving subtraction of numbers up to 20 using concrete and pictorial models.** **(Lessons 4–5)**
Objective 4:	**Use objects and pictorial models to solve word problems involving joining, separating, and comparing sets within 20 and unknowns as any of one of the terms in the problem.** **(Lessons 6–8)**
Objective 5:	**Generate and solve problem situations when given a number sentence involving addition or subtraction of numbers within 20.** **(Lessons 9–10)**

Terminology

Familiar Terms and Symbols

The Additional Days School Year (ADSY) lessons are supplemental to the core instructional materials. As such, no new academic vocabulary has been introduced. Continue to use academic language that was introduced during core instruction so students can develop precision in their use of mathematical language. For a list of terms and symbols relevant to Topic A, see the *Familiar Terms and Symbols* sections in module overviews for Modules 1, 2, 3, 4, and 6.

Suggested Tools and Representations

The list below includes tools needed to teach the lessons, and representations that appear in the topic. Note that common classroom staples such as personal white boards, dry erase markers and erasers, scissors, paper, construction paper, chart paper, crayons, markers, pencils, paper clips, glue, clear tape, and masking tape are not included in the list. Printable materials that are included with the lessons, such as templates, are also not included in the list.

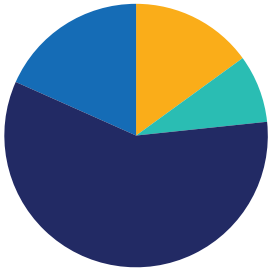
- 20-bead Rekenrek (Slavonic abacus having beads with a color change at the five)
- Beans
- Cardboard, used to cover part of the Rekenrek
- Connecting or linking cubes
- Counters
- Cup
- Document camera
- Dots in organized configurations
- Equations
- Expressions
- Finger formations and hand motions
- Number bonds
- Number sentences
- Standard form
- Stopwatch or timer
- Ten-frames

Lesson 1

Objective: Represent addition word problems within 20 using concrete models.

Suggested Lesson Structure

Fluency Practice	(9 minutes)
Application Problem	(5 minutes)
Concept Development	(35 minutes)
Student Debrief	(11 minutes)
Total Time	**(60 minutes)**



Fluency Practice (9 minutes)

- Show Me Your Math Fingers: Partners to 5 and 5 More **K.2I** (5 minutes)
- Take Out 1 **1.3D, 1.5F** (2 minutes)
- Decompose Teen Numbers **1.2B** (2 minutes)

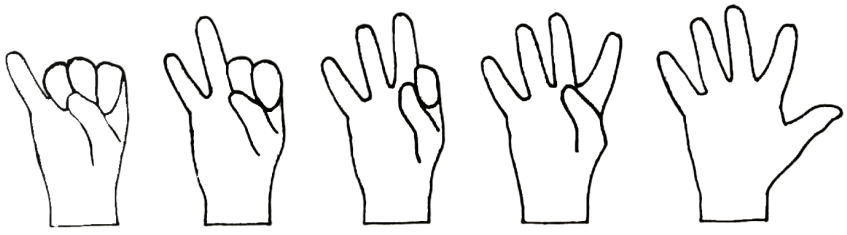
Show Me Your Math Fingers: Partners to 5 and 5 More (5 minutes)

Note: This activity reviews adding and subtracting within 10 in anticipation of today's Concept Development focused on adding within 20. (Adjust activity as needed to meet varying physical student needs.)

Remind students how to count the Math Way. Demonstrate counting from 1–10 using fingers, beginning with the pinky on the left hand. For the number 5, push out the right hand. For the number 6, push both the right hand and thumb of the left hand.

NOTES ON FLUENCY:

Throughout the module, teachers are encouraged to make appropriate adjustments to fluency activities to account for varying student needs.



Call out a number less than or equal to 5, and students hold up their fingers the Math Way to show the matching amount.

Once students hold up a given number of fingers, ask how many more fingers are needed to make 5. As students say the partner to 5, affirm their answers aloud, "Yes. 3 and 2 make 5."

Move on to numbers 6–10. For each number, ask how many more fingers are needed to make 10.

Take Out 1 (2 minutes)

Note: This activity supports fluency with decomposing numbers within 10. This skill is critical for using the addition strategy of *making ten*, which will be referenced in future lessons. With this strategy, students move 1 from one addend and add it to 9.

T: Take out 1 on my signal. For example, if I say "5," you say "1 and 4."

T: 7.

S: 1 and 6.

T: 10.

S: 1 and 9.

Continue with all numbers within 10.

Decompose Teen Numbers (2 minutes)

Note: This activity reviews decomposing teen numbers by place value and prepares students for problem-solving strategies referenced in future lessons.

T: Let's start by reviewing counting to 19 using the Say Ten way.

T/S: 1, 2, 3, 4, 5, 6, 7, 8, 9, ten, ten 1, ten 2, ten 3, ten 4, ten 5, ten 6, ten 7, ten 8, ten 9.

T: Now, I'm going to say a teen number, and you will break it apart into a ten and some ones. If you get stuck, think about how you would say the number using the Say Ten way. 15 is ten and…?

S: 5.

T: 17 is ten and…?

S: 7.

T: 13 is…?

S: 10 and 3.

Continue with all teen numbers.

Application Problem (5 minutes)

Materials: (S) Problem-solving mat (Template), beans

Javier has 3 blue markers and 3 yellow markers. How many markers does Javier have? Use your beans and problem-solving mat to solve.

Extension: Sofia has 3 blue markers and 4 yellow markers. How many markers does Sofia have? Use your beans and problem-solving mat to solve.

How might you have used your answer from the first problem to solve the second problem?

Note: These problems were chosen to review addition within 10 in anticipation of today's lesson in which students add within 20. Further, these problems were selected to help students see that numbers are related; solving one problem involving doubles (3 + 3) can help solve another problem involving near doubles (3 + 4).

Concept Development (35 minutes)

Materials: (T) Problem-solving mat (Template), beans, cup of 6 pencils and 7 crayons
(S) Problem-solving mat (Template), beans

Part 1: Adding Pencils and Crayons

T: After school yesterday, I decided to organize my desk. I collected all of my loose pencils and crayons, and put them in a cup. I collected 6 pencils (display 6 pencils) and 6 crayons (display 6 crayons). Represent these amounts on your problem-solving mat. You can choose to use the ten-frames or the number bond.

S: (Place 6 beans for pencils and 6 beans for crayons on the problem-solving mat.)

T: Those who used the ten-frames, where did you place your beans?

S: I put 6 beans on the top ten-frame and 6 on the bottom ten-frame.

T: Those who used the number bond, where did you place your beans?

S: I put 6 beans in the bottom-left circle and 6 in the bottom-right circle.

T: Why didn't you fill the top circle?

S: The bottom circles are the parts. Part of our set is pencils and part is crayons.

T: (Model putting the 6 pencils and 6 crayons in a cup.) I put all of my pencils and crayons in a cup together. How many items are in my cup? Find the answer. Then talk to your partner about how you found your answer.

S: (Add 6 and 6 to get a total of 12.)

T: How did you find your answer?

S: I used my number bond. I moved all of my beans to the top circle and counted 12 beans.

T: That is called *counting all*. You moved your beans together and counted all of them. Did anyone do something different?

S: I used my ten-frames. I started with 6 beans on the top ten-frame and 6 on the bottom ten-frame. I moved some beans up to make a full ten-frame on top. Since I knew the top ten-frame had ten, I counted on from ten. 11, 12.

T: That's called *making ten*. There are many different ways to represent this problem and add to get the answer. You can choose whatever way makes sense to you.

Part 2: Adding Glue Sticks

T: Now let's try another problem. Yesterday, I noticed we were out of glue sticks, so I opened a pack of 6 glue sticks. Then I opened a pack of 7 glue sticks. Represent these amounts on your ten-frames or number bond.

S: (Place 6 beans and 7 beans on the problem-solving mat.)

T: I put all of the new glue sticks in a box. How many glue sticks did I put in the box? Find the answer. Then talk to your partner about how you found your answer.

S: (Add 6 and 7 to get a total of 13.)

T: How did you find your answer?

S: I used a ten-frame. I put 6 beans on the top ten-frame and 7 on the bottom ten-frame. Since the bottom ten-frame was almost full, I moved 3 beans down to fill it. Now I have 3 beans and 10 beans. That's 13.

T: Great! That's called *making ten*. You filled a ten-frame to make ten. Then you could see you had a total of 13. Did anyone do something different to find the total?

S: I used my number bond. I put 6 beans in one of the bottom circles and 7 beans in the other bottom circle. Then I saw that it's just like our pencils and crayons problem. It's just 1 more! 6 and 6 is a total of 12, so 6 and 7 is a total of 13.

T: Yes! You can use one addition fact to solve another addition fact. If you know 6 + 6, it helps you know 6 + 7.

T: Today, we represented problems using beans on ten-frames and number bonds. Then we used counting strategies to find our solutions. Some of us also used known addition facts to find answers to our addition problems. As you work through the Problem Set, continue to represent each problem on your problem-solving work mat. You may choose to use the ten-frames or number bonds. Once you find the answer, record it on your paper.

Note: The primary goal of this lesson is to represent problems using objects. A secondary goal is for students to share their problem-solving strategies. When students are given problems and allowed to select procedures meaningful to them, they construct their own strategies. Students adapt these strategies as they share ideas. Initially, students use visual representations to model actions and relations in problems. Eventually, they begin to use more efficient counting strategies.

Problem Set (15 minutes)

Read each problem aloud. Reread as needed. Students should do their personal best to complete the Problem Set within the allotted time.

Note: The Problem Set was intentionally developed to expose students to a variety of problem types. Problems 1 and 2 are examples of *add to with result unknown* problems. With this problem type, there is an action as items are physically joined together. Problems 3 and 4 are examples of *put together with total*

NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Chunk the problems into small pieces as needed. Read the first sentence, and then pause. Allow students time to represent the information in the sentence before moving on with the next one. For example, "Mr. Don had 7 boxes of crayons in his classroom." (Pause.) "He bought 4 more boxes of crayons." (Pause.) "How many boxes of crayons does Mr. Don have now?"

unknown problems. With this problem type, there is no action. For example, part of a set is one color and part is a different color. The students are asked to find the total amount in the set. Generally, students prefer to solve *result unknown* problems because they can be acted out.

Student Debrief (11 minutes)

Lesson Objective: Represent addition word problems within 20 using concrete models.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- How did you use beans to represent Problem 1?
- How could you use counting to get your solution to Problem 1?
- Look at Problem 2. Talk to a partner about how you each found the answer. What is the same about the ways you solved Problem 2? What is different?
- How might you make a ten to solve Problem 2?
- How can solving Problem 3 help you solve Problem 4?

Exit Ticket (5 minutes)

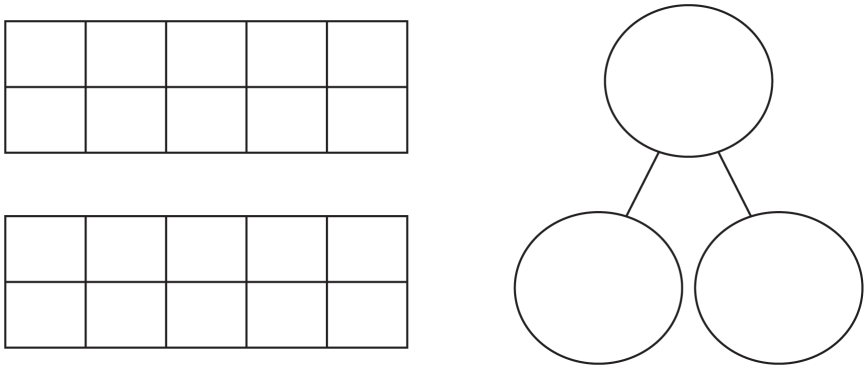
After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

Name _____ Date _____

Use beans and your problem-solving mat to model each problem.

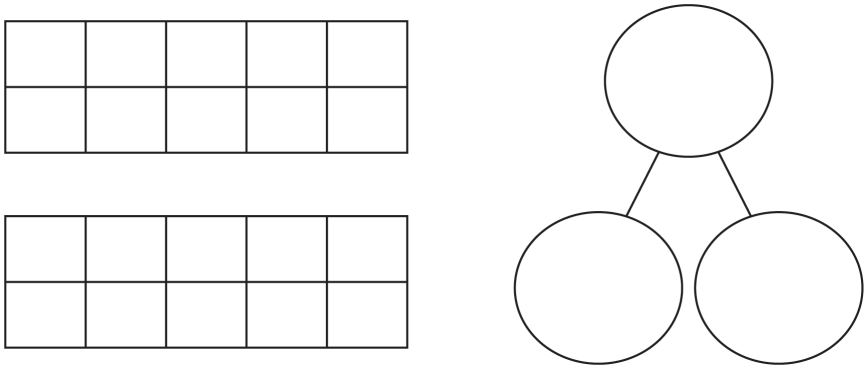
Draw a picture to match your work, and write your answer on the line.

1. Mr. Don had 7 boxes of crayons in his classroom. He bought 4 more boxes of crayons. How many boxes of crayons does Mr. Don have now?



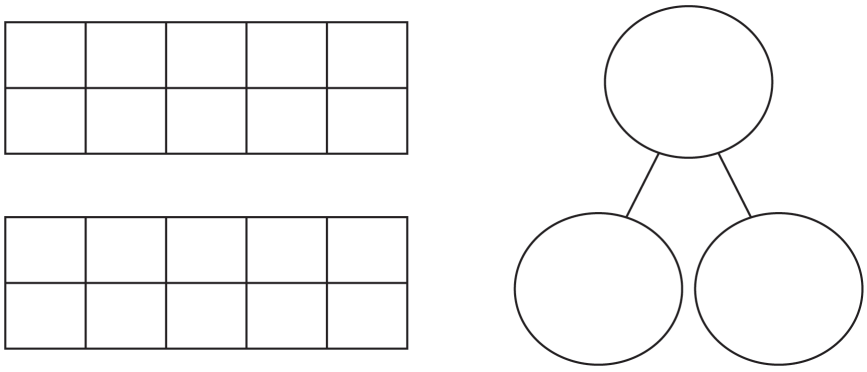
_____ boxes of crayons

2. On Monday, Nia brings 9 packs of paper to school. On Tuesday, she brings 6 packs of paper to school. How many packs of paper does Nia bring to school?



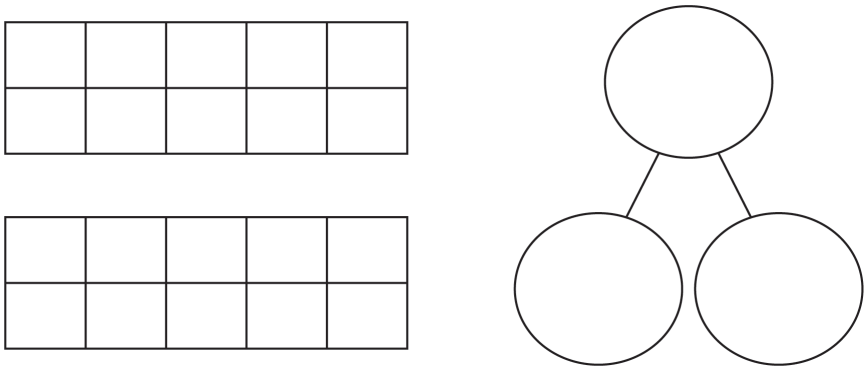
_____ packs of paper

3. Mr. Don has 8 red pens and 8 blue pens. How many pens does Mr. Don have?



_____ pens

4. There are 8 boys and 9 girls in Mr. Don's class. How many students are in his class?



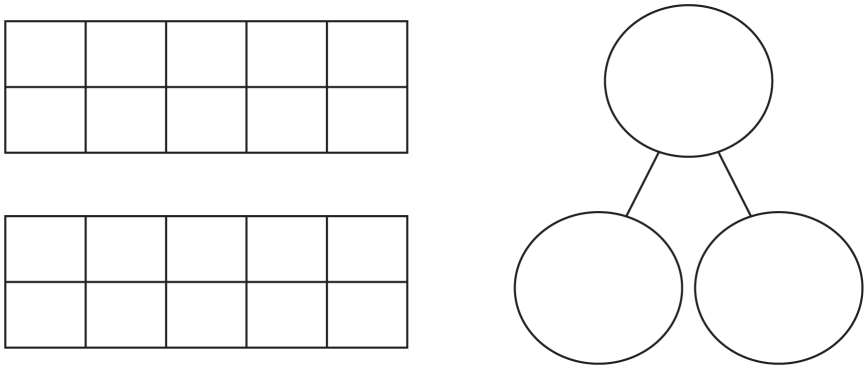
_____ students

Name _____ Date _____

Use beans and your problem-solving mat to model each problem.

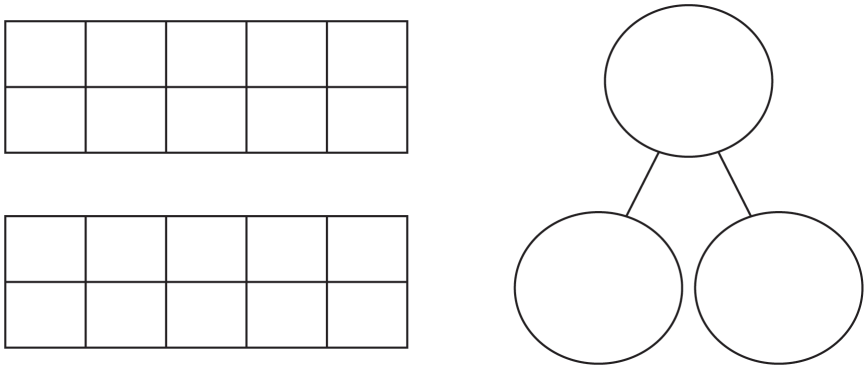
Draw a picture to match your work, and write your answer on the line.

1. Mr. Don cleans the classroom after school. He finds 9 pencils on the floor. Then he finds 7 more pencils. How many pencils does Mr. Don find?

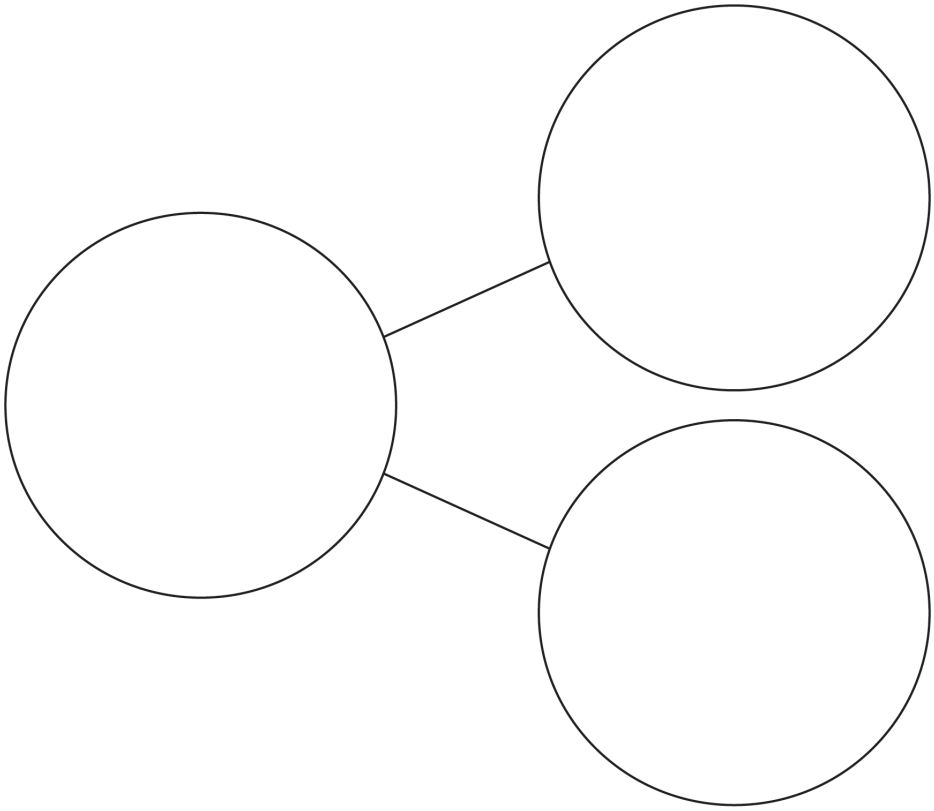


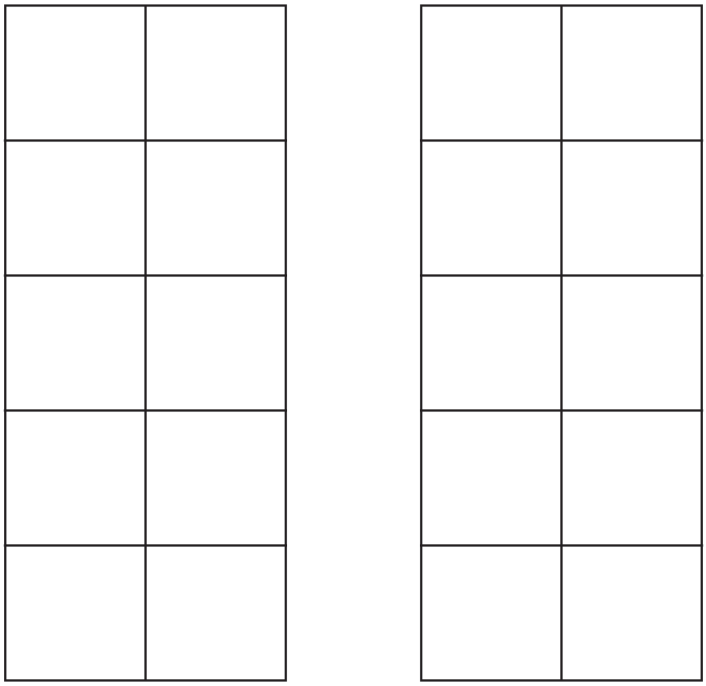
_____ pencils

2. Mr. Don finds crayons on the art table. 4 crayons are red. 8 crayons are blue. How many crayons does Mr. Don find at the art table?



_____ crayons





problem-solving mat

Application Problem

6 markers

7 markers

Answers will vary, but may include thinking about doubles.

Problem Set

1. 11 boxes of crayons
2. 15 packs of paper
3. 16 pens
4. 17 students

Exit Ticket

1. 16 pencils
2. 12 crayons

Lesson 2

Objective: Represent addition word problems within 20 using pictorial models and number sentences.

Suggested Lesson Structure

Fluency Practice	(13 minutes)
Application Problem	(6 minutes)
Concept Development	(30 minutes)
Student Debrief	(11 minutes)
Total Time	**(60 minutes)**

Fluency Practice (13 minutes)

- 5-Group Flash **K.5** (3 minutes)
- Number Bond Dash **1.3B** (5 minutes)
- Take Out 1: Number Bonds **1.3D, 1.5F** (5 minutes)

NOTES ON FLUENCY PRACTICE:

Think of fluency as having three goals: 1. Maintenance (staying sharp on previously learned skills). 2. Preparation (targeted practice for the current lesson). 3. Anticipation (skills that ensure that students are ready for the in-depth work of upcoming lessons). Example of anticipatory fluency: Students must be secure in counting to 5 long before they can be expected to decompose 5.

5-Group Flash (3 minutes)

Materials: (T) Large 5-group cards (Fluency Template 1)

Note: This activity reviews adding and subtracting within 10.

Round 1: The teacher flashes a large 5-group card for 2–3 seconds. The card is then removed from view. The teacher asks the class to state the number of dots shown when given a signal (e.g., clap). The teacher continues to flash all cards in random order.

Round 2: Flash the cards again and count on from the number flashed, up to 10.

Number Bond Dash (5 minutes)

Materials: (T) Stopwatch or timer
(S) Number bond dash (Fluency Template 2)

Note: The number bond dash practices composing/decomposing numbers within 10 and develops fluency adding and subtracting within 10.

Distribute the number bond dash, face down, to students. Instruct students to flip their papers when they hear the word “Go!” and complete as many number bonds as they can in 90 seconds. Assure them that it is okay if they run out of time before they finish. Tell them if they finish before time, they can practice counting

to 20 on the back of their papers, starting with the number 5. Change the counting sequence to meet the needs of each student in later lessons.

T: (Set the timer for 90 seconds.) On your mark, get set, GO! (Press start.)

T: (When the timer goes off, tell students to put down their pencils and grab a marker to correct their work.)

T: When you get an answer correct, put a check mark on the problem number. If you make a mix-up, fix it with your marker.

T: (Read the number bonds aloud, starting with Problem 1. When the answers to all problems have been provided, tell students to write the number of problems they got correct on the line at the top. Encourage them to remember their scores because they are going to try to do even better tomorrow.)

Take Out 1: Number Bonds (5 minutes)

Materials: (S) Personal white board

Note: This fluency activity reviews the *make ten* strategy. With this strategy, students take 1 from one addend and add it to the other addend to make 10. For example, instead of adding 4 + 9, a student takes 1 from 4, making the new problem 3 + 10.

Say a number within 10. Students quickly write a number bond for the number said, using 1 as a part, and hold up their personal white boards when finished.

T: Write a number bond for the number 7. Make sure one part is 1.

S: (Write 1 + 6.)

T: Write a number bond for the number 3. Make sure one part is 1.

S: (Write 1 + 2.)

Application Problem (6 minutes)

Materials: (S) Problem-solving mat (Lesson 1 Template), beans

Destiny ate 7 red grapes and 7 green grapes. How many grapes did Destiny eat? Use your beans and problem-solving mat to solve.

Extension: Noah ate 7 red grapes and 8 green grapes. How many grapes did Noah eat? Use your beans and problem-solving mat to solve. How can you use your answer from the first problem to solve the second problem?

Note: These problems were chosen to review representing addition with objects in anticipation of today's lesson in which students represent addition with drawings. Additionally, these problems were selected to help students see that numbers are related; solving one problem involving doubles (7 + 7) can help solve another problem involving near doubles (7 + 8).

Concept Development (30 minutes)

Materials: (S) Problem-solving mat (Lesson 1 Template)

Part 1: Representing Addition on a Ten-Frame

T: During yesterday's lesson, we represented problems using objects. Today, we will represent problems using drawings and number sentences.

T: This morning, the school cafeteria workers filled the freezer with a shipment of food. They put 9 boxes of frozen vegetables in the freezer. Then they put 6 boxes of frozen fruit in the freezer. Represent these amounts on your problem-solving mat using the ten-frames.

S: (Draw 9 boxes/circles and 6 boxes/circles.)

T: Where did you draw your boxes?

S: I drew 9 boxes on the top ten-frame and 6 on the bottom ten-frame.

T: How many boxes were put in the freezer in all? Use your drawing to find the answer. When you're finished, talk to a partner about how you found your answer.

S: (Add 9 and 6 to get a total of 15.)

T: How did you find your answer?

S: I counted the boxes I drew. 15.

T: Yes, you can count all of your boxes to find the total. Did anyone do something different?

S: I looked at the 9 boxes in my top ten-frame. I put 9 in my head and counted on from there. I said one number for each box in the bottom ten-frame. 10, 11, 12, 13, 14, 15.

T: Yes, you can count on from one addend/number in the problem. Did anyone do something different?

S: I crossed out a box from the bottom ten-frame and drew it in the top ten-frame instead. Now my problem is 10 plus 5. That's 15.

T: You solved the problem by removing one from 6 and adding it to the 9.

T: Now that everyone has solved this problem, write a number sentence to match the problem.

S: (Write 9 + 6 = 15.)

T: What do the 9 and 6 represent?

S: 9 boxes of vegetables and 6 boxes of fruit.

T: What does the 15 represent?

S: The total number of boxes.

T: Are there any other number sentences we could write to match this problem?

S: 6 + 9 = 15. → 15 = 9 + 6. → 15 = 6 + 9.

T: Today and everyday, we can represent addition problems by drawing pictures on a ten-frame and writing number sentences.

Part 2: Representing Addition on a Number Bond

T: The cafeteria cooked 8 pans of carrots and 4 pans of green beans. On the bottom-left part of your number bond, draw 8 circles to represent the pans of carrots. On the bottom-right part of your number bond, draw 4 circles to represent the pans of green beans.

S: (Draw 8 circles and 4 circles.)

T: How many pans of vegetables did the cafeteria cook? Use your number bond to find the answer.

S: (Add 8 and 4.)

T: How did you get your answer?

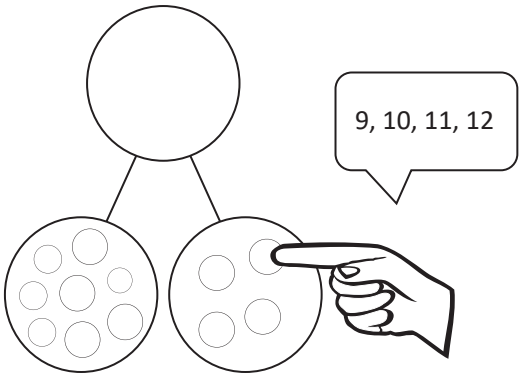
S: I added. I drew 8 circles and 4 more circles in the top section of my number bond. Then I counted all of the circles. That's 12.

T: Yes! You can join the sets at the top of your number bond and count all of the items to find the total. Did anyone do something different?

S: I put 8 in my head and counted on as I touched each circle that shows green beans. I said one number for each circle I counted. 9, 10, 11, 12.

T: Yes! This is called *counting on*. You put the number from the first part in your head and counted on from there. As you touched each drawing in the second part, you said one number. I wonder if you could put the 4 in your head instead of 8. Class, let's try this. Let's add 4 and 8. This time, everyone put 4 in your head and count on 8. Touch and say 1 number for each drawing you touch.

Counting on from 8



S: (Add 4 + 8 by counting on from 4.)

T: Does it matter which number you put in your head and which number you count on?

S: No. You still get the same answer.

T: (Record 8 + 4 and 4 + 8 on the board.) Is 8 + 4 the same amount as 4 + 8?

S: Yes.

T: Now that we've solved this problem, look at your number bond and write a number sentence to match the problem.

S: (Write 4 + 8 = 12, 8 + 4 = 12, 12 = 4 + 8, or 12 = 8 + 4.)

T: (Record the different ways students may have written a number sentence.) There are a few ways you could have written a number sentence to match the problem. The total should be on one side of the equal sign, and the two parts should be on the other side of the equal sign. Remember, the equal sign means *balanced* or *same amount*. This means 4 + 8 is the same amount as 12.

T: Today, we represented problems using drawings and number sentences. As you work through today's Problem Set, draw pictures to represent each problem. For each problem, you may choose to use ten-frames or a number bond. Then write a number sentence to match the problem.

Note: The primary goal of this lesson is to represent problems using drawings and number sentences. A secondary goal is for students to share their problem-solving strategies. When students are given problems and allowed to select procedures meaningful to them, they construct their own strategies. Students adapt these strategies as they share ideas. Initially, students use visual representations to model actions and relations in problems. Eventually, they begin to use more efficient counting strategies.

Problem Set (10 minutes)

Read each problem aloud. After reading the problem, pause for students to solve. Reread as needed. Students should do their personal best to complete the Problem Set within the allotted time.

Note: The Problem Set was intentionally developed to expose students to a variety of problem types. Problems 1 and 2 are examples of *add to with result unknown* problems. With this problem type, there is an action as items are physically being joined together. Problems 3 and 4 are examples of *put together with total unknown* problems. With this problem type, there is no action. For example, part of a set is one color and part is a different color or size. The students are asked to find the total amount in the set. Generally, students prefer to solve *result unknown* problems because they can be acted out.

Student Debrief (11 minutes)

Lesson Objective: Represent addition word problems within 20 using pictorial models and number sentences.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- How did you use drawings to represent Problem 1?
- What number sentence did you use to represent this problem? How does your number sentence match the problem? Are there any other number sentences that also match this problem?
- Look at Problem 2. Talk to a partner about how you each found the answer. What is the same about the ways you solved Problem 2? What is different?
- How might you make a ten to solve Problem 2?
- How can solving Problem 3 help you solve Problem 4?

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Ask questions to guide connections, analysis, and proficiency of concepts. This allows students the opportunity to develop critical thinking skills instead of just memorizing answers.

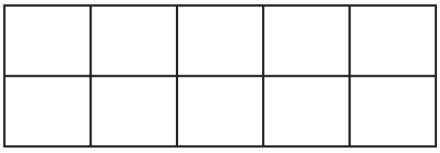
Exit Ticket (5 minutes)

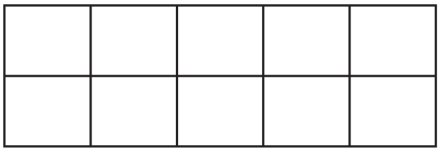
After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

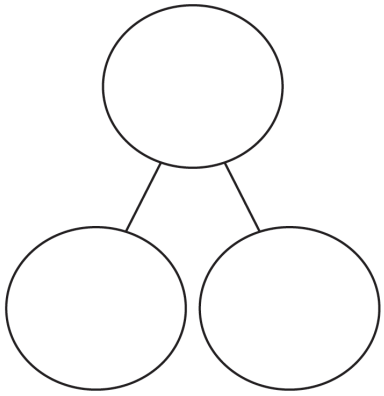
Name _____ Date _____

Draw pictures on the ten-frames or number bond to solve each problem.
Then write a number sentence to match your work.

1. 7 classes come to the cafeteria for lunch. Then 4 more classes come to the cafeteria. How many classes are in the cafeteria now?

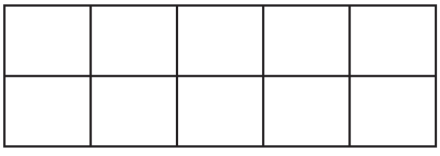


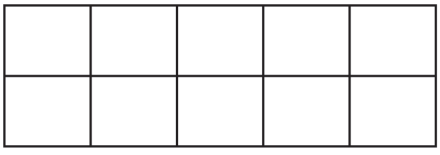


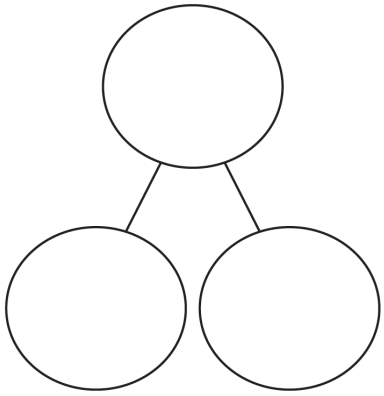


Number sentence: _____

2. In the morning, Ms. Arnez bakes 9 chickens. At lunchtime, she bakes 8 more chickens. How many chickens does Ms. Arnez bake?

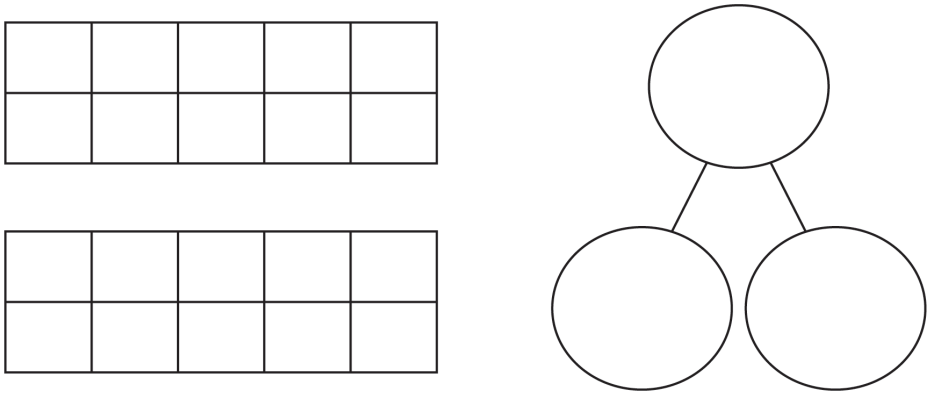






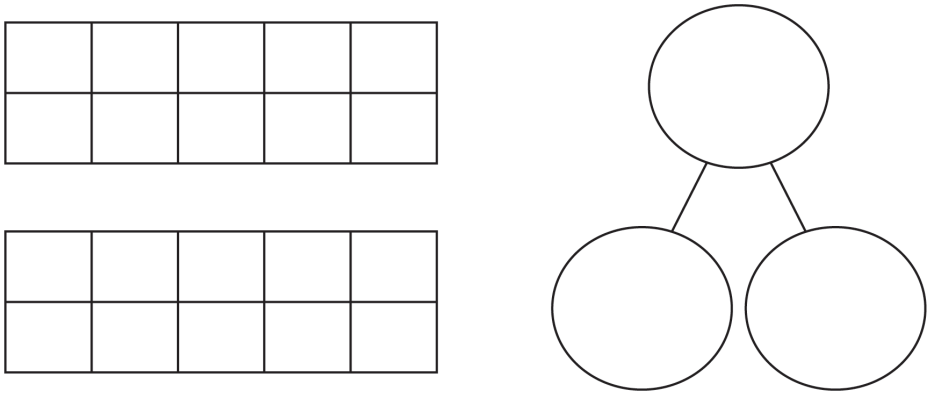
Number sentence: _____

3. There are 6 chocolate cakes and 5 strawberry cakes in the cafeteria. How many cakes are in the cafeteria?



Number sentence: _____

4. At the end of the day, there are 5 ham sandwiches and 6 turkey sandwiches leftover. How many sandwiches are leftover?

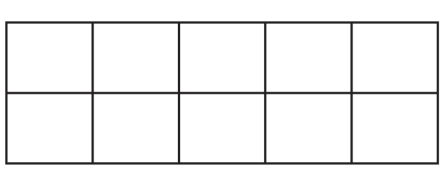


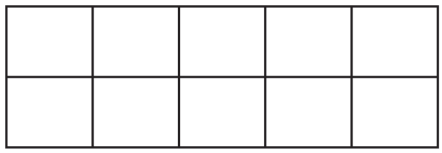
Number sentence: _____

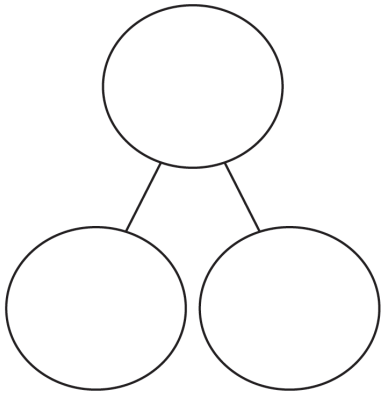
Name _____ Date _____

Draw pictures on the ten-frames or number bond to solve each problem.
Then write a number sentence to match your work.

1. Ms. Arnez put 9 pizzas in the oven. Mr. Li put 7 pizzas in the oven. How many pizzas did they put in the oven altogether?

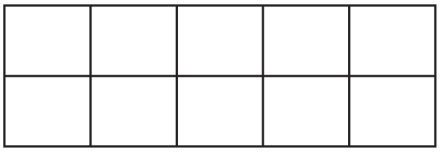


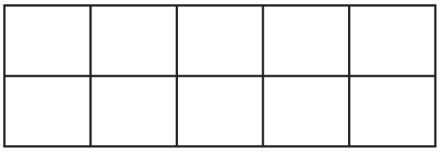


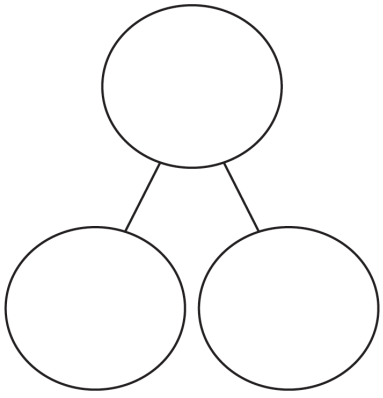


Number sentence: _____

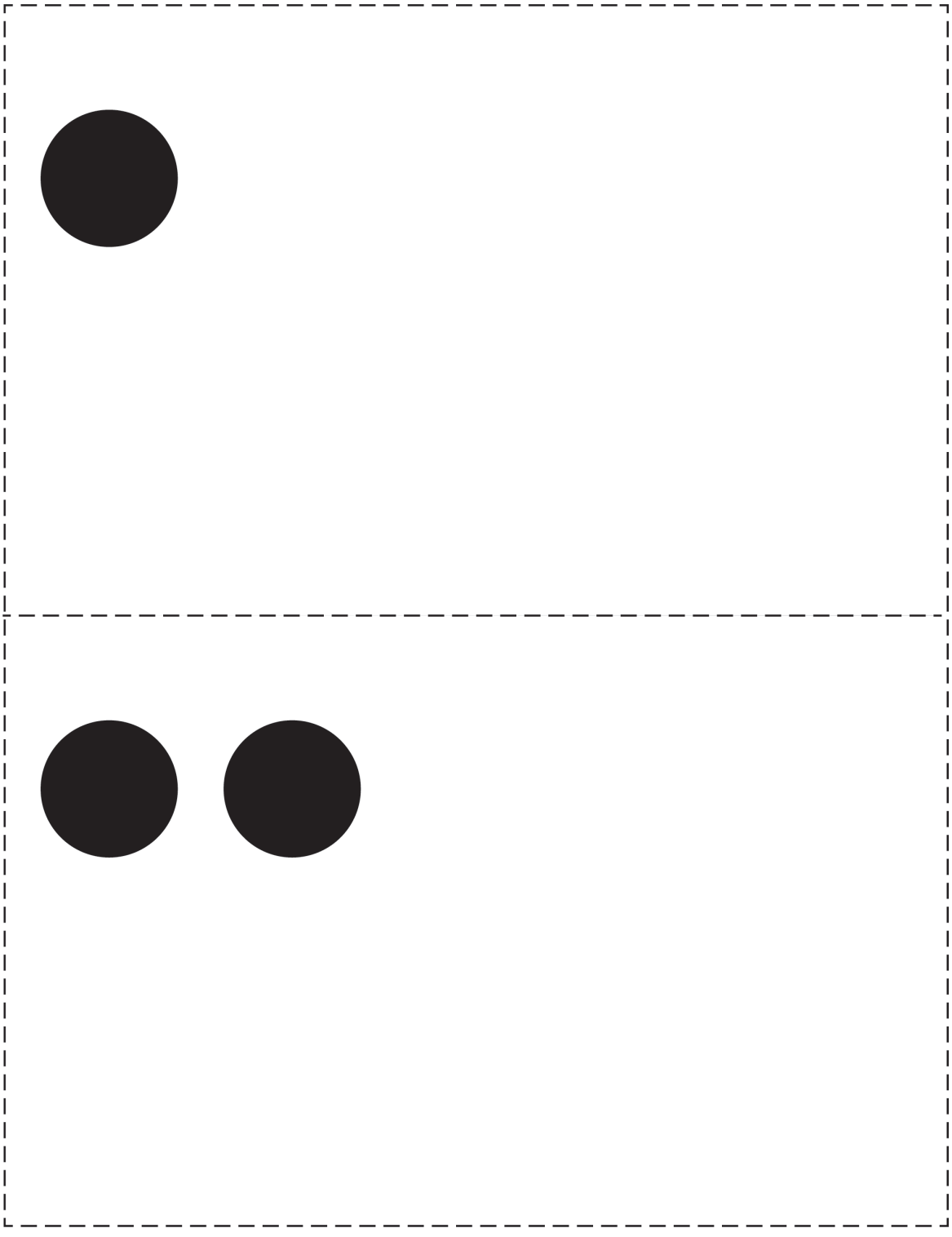
2. Mr. Munn's class bought 8 cartons of chocolate milk and 5 cartons of white milk. How many cartons of milk did Mr. Munn's class buy?



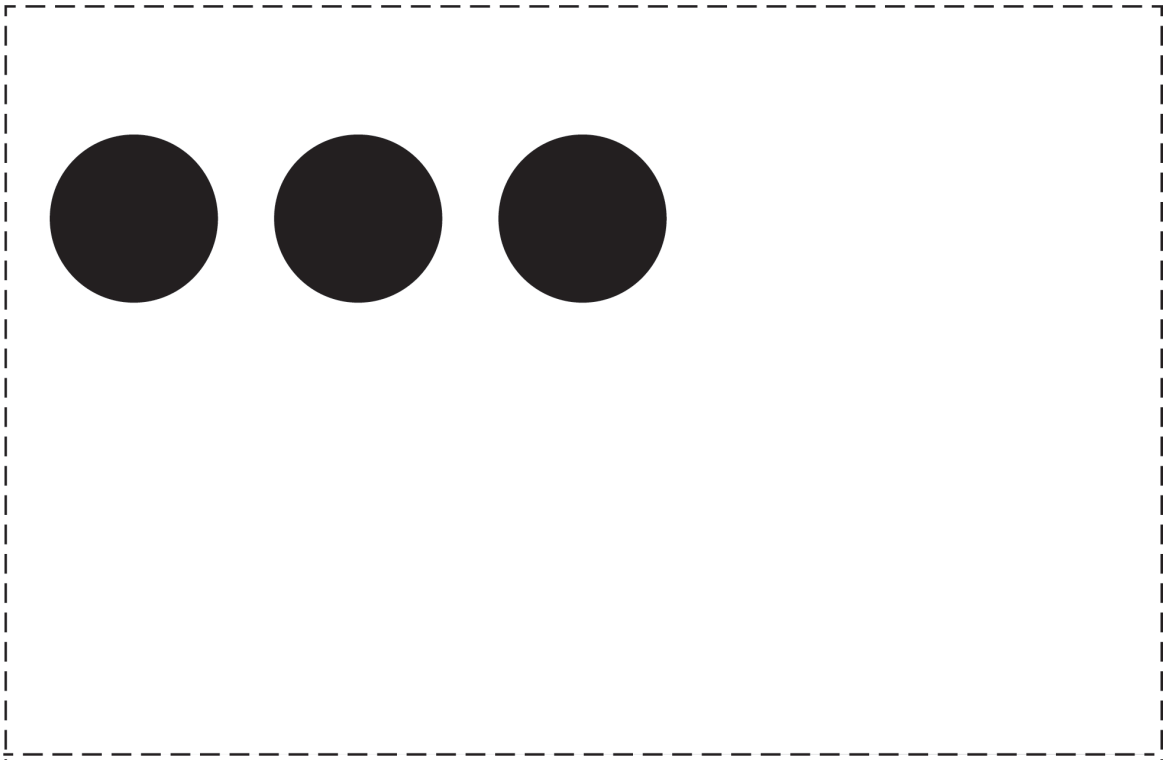


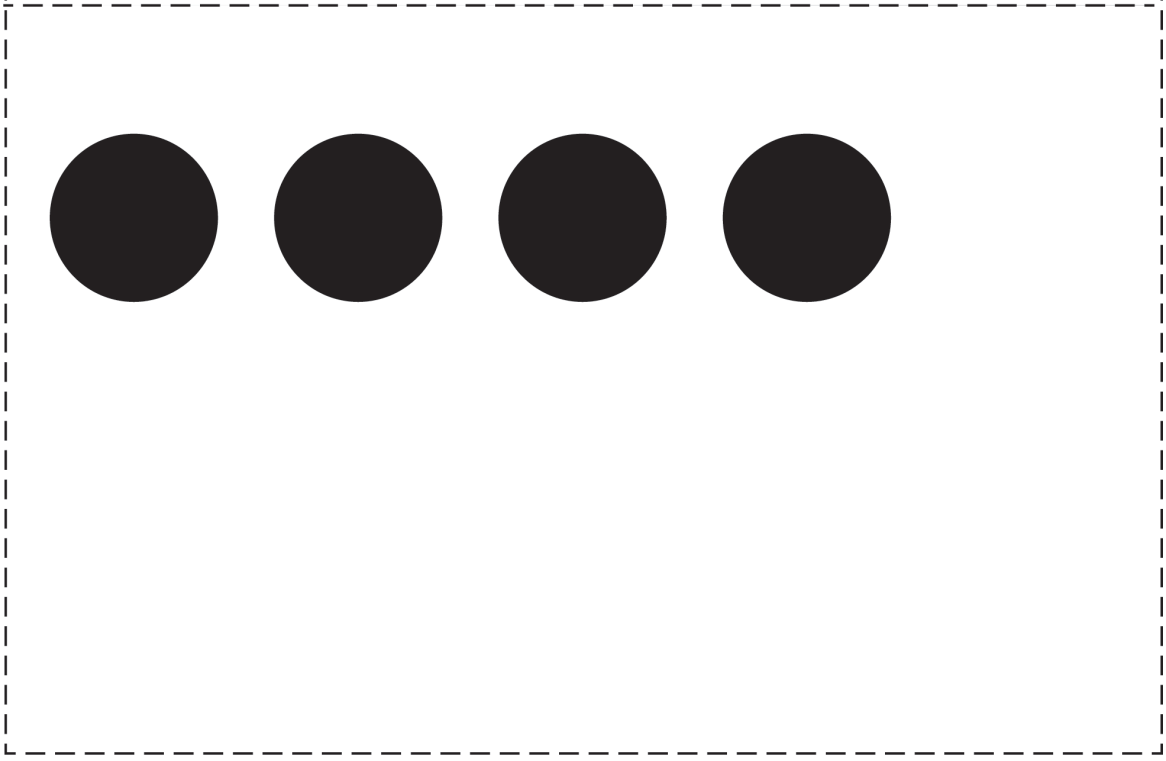


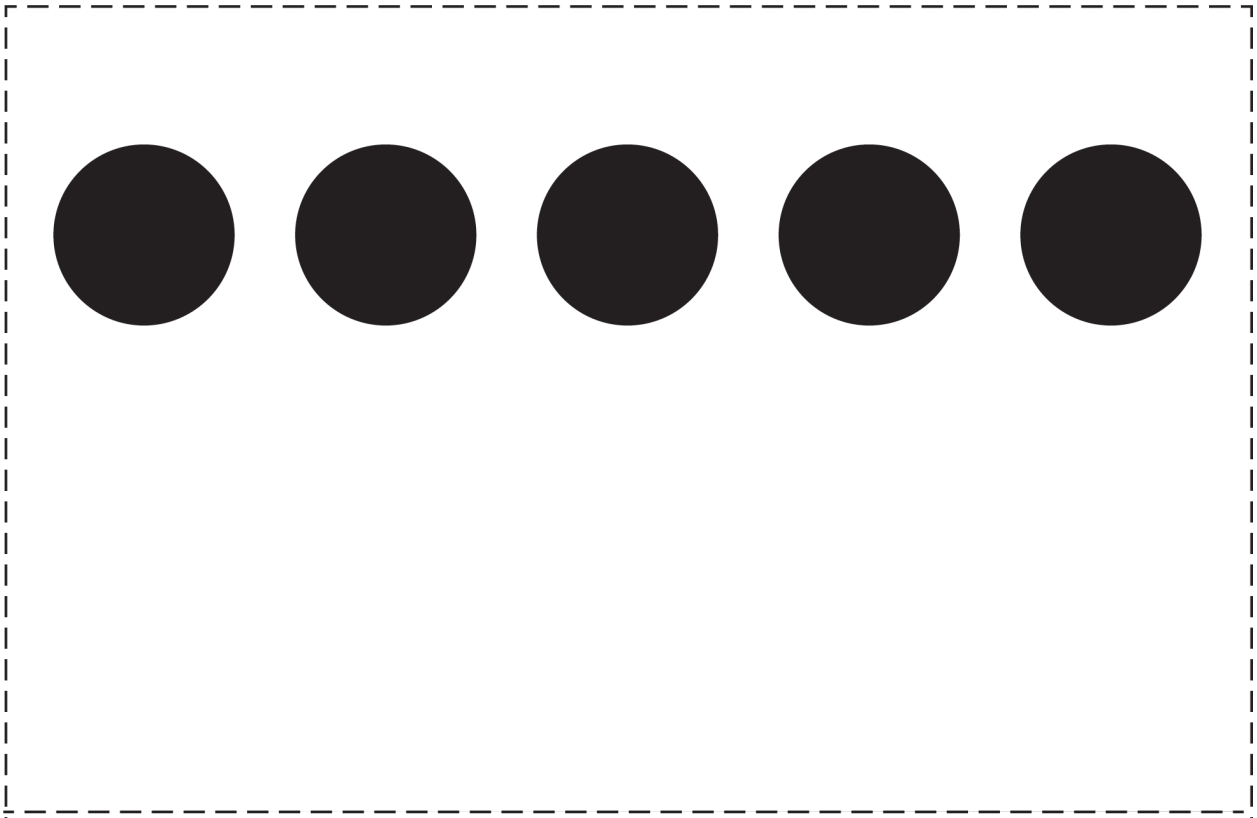
Number sentence: _____

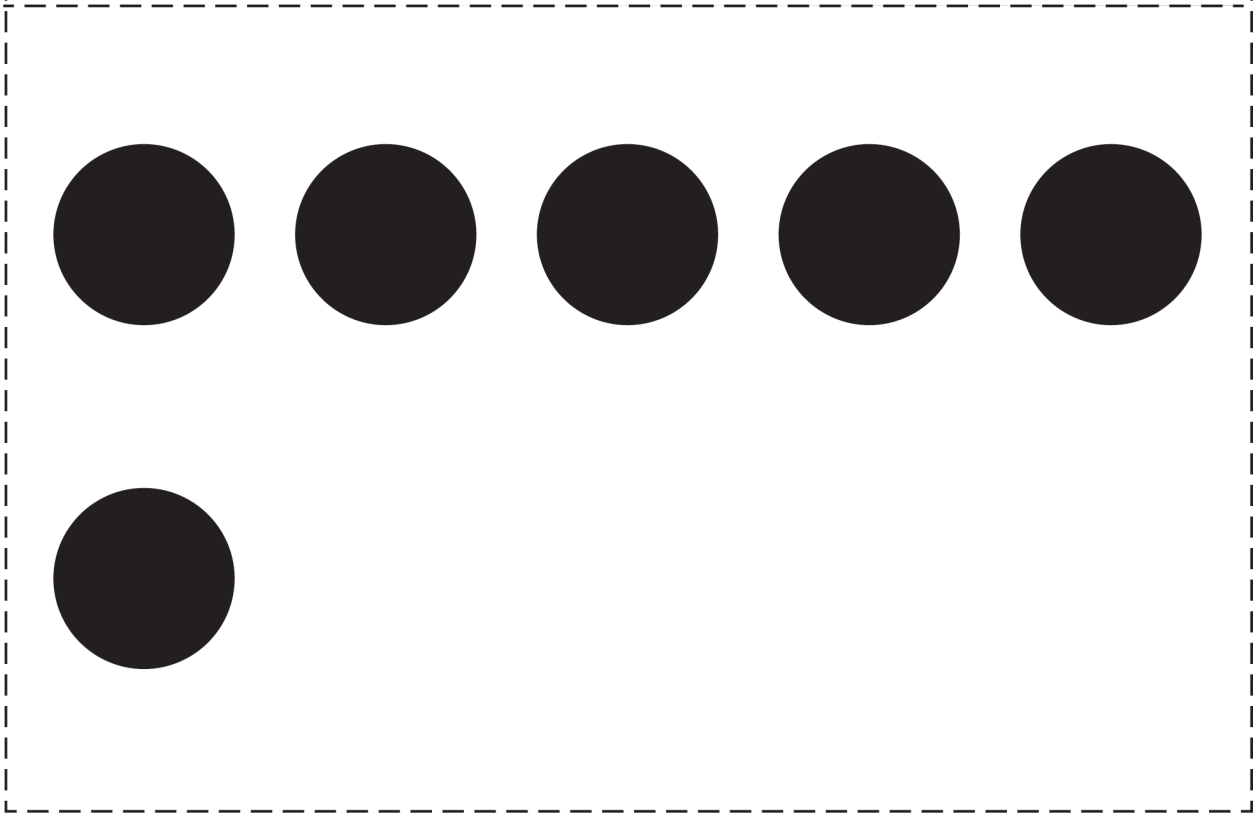


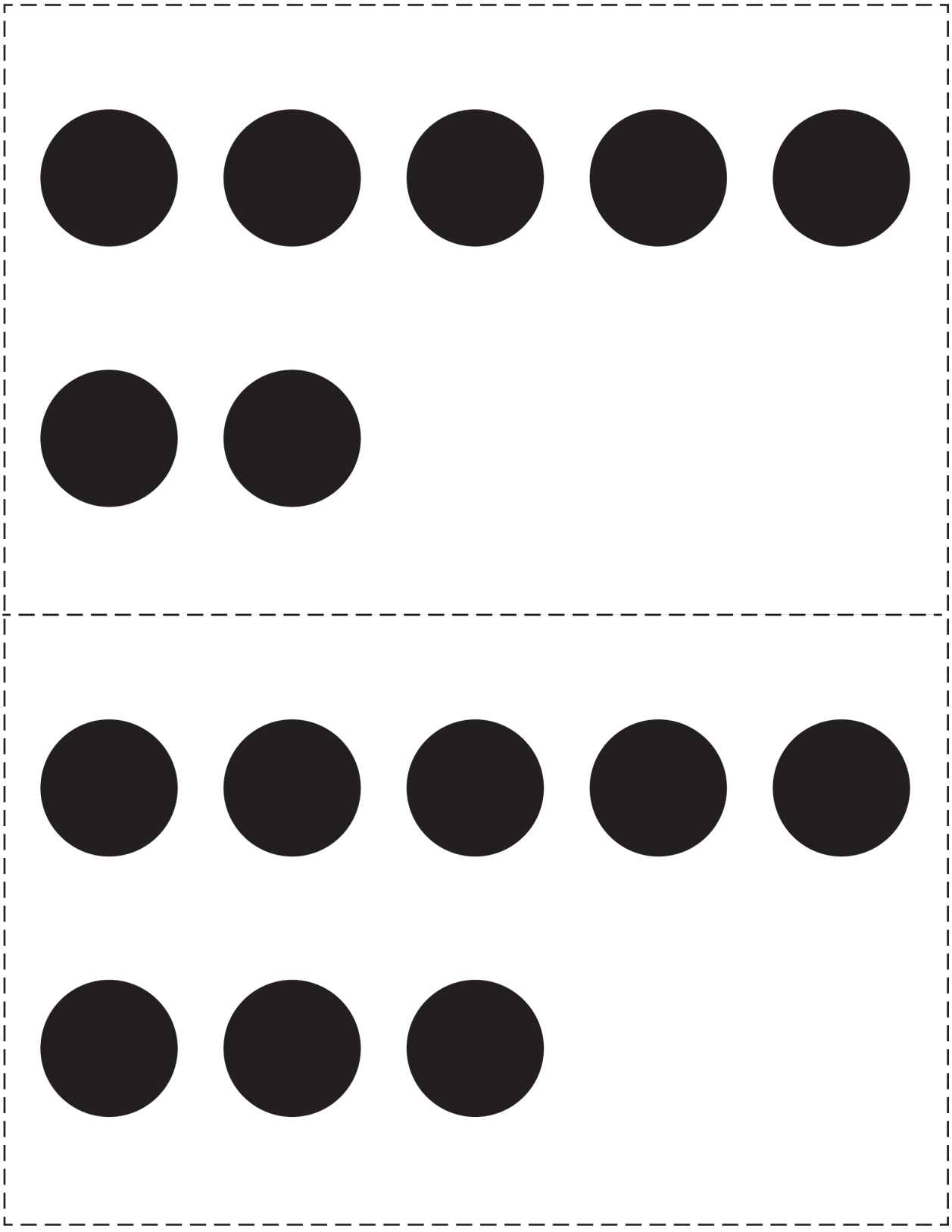
large 5-group cards

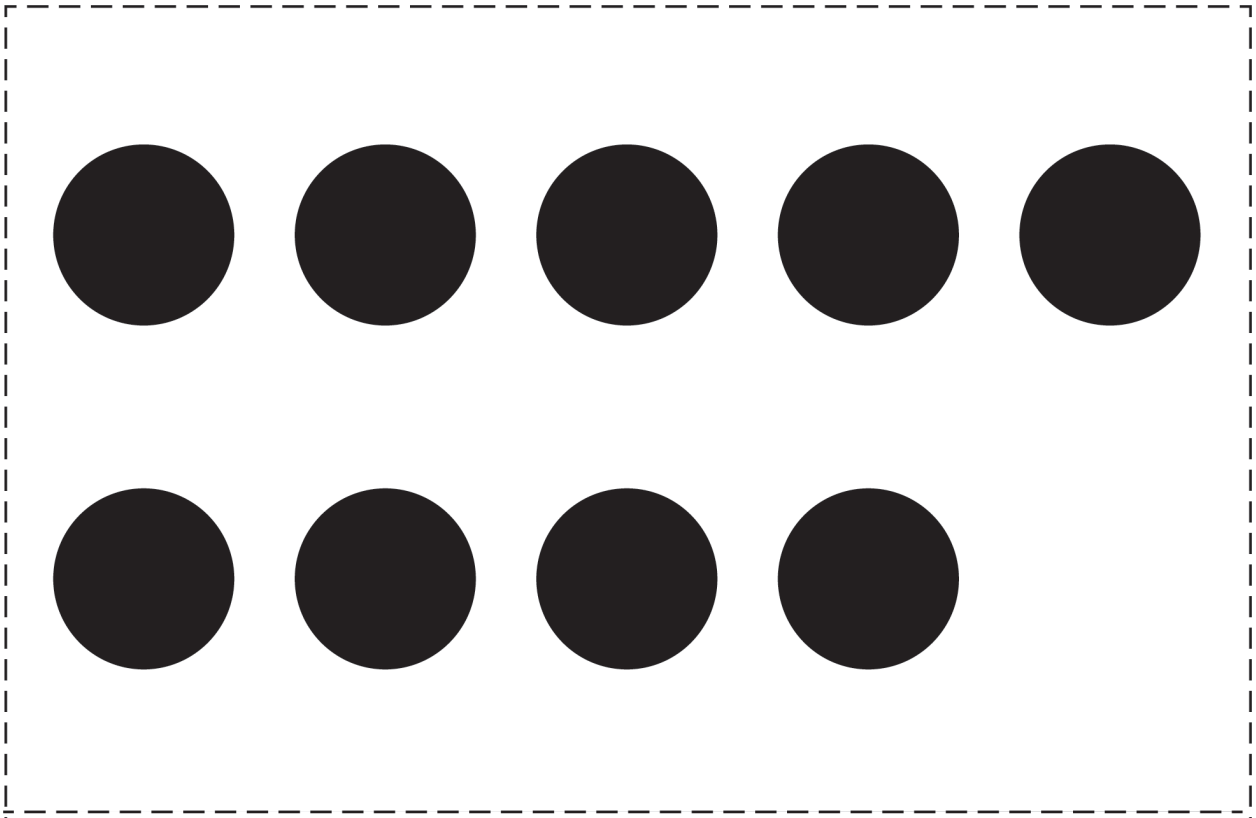


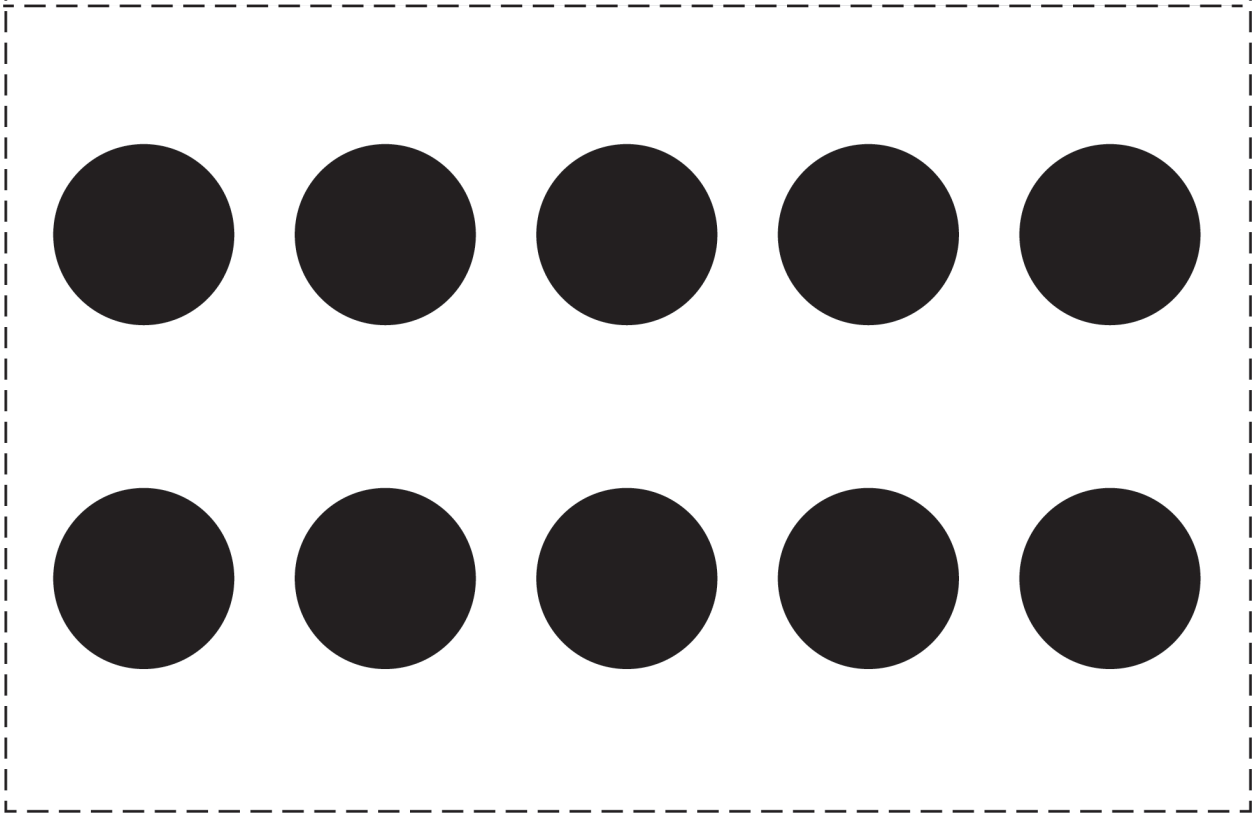








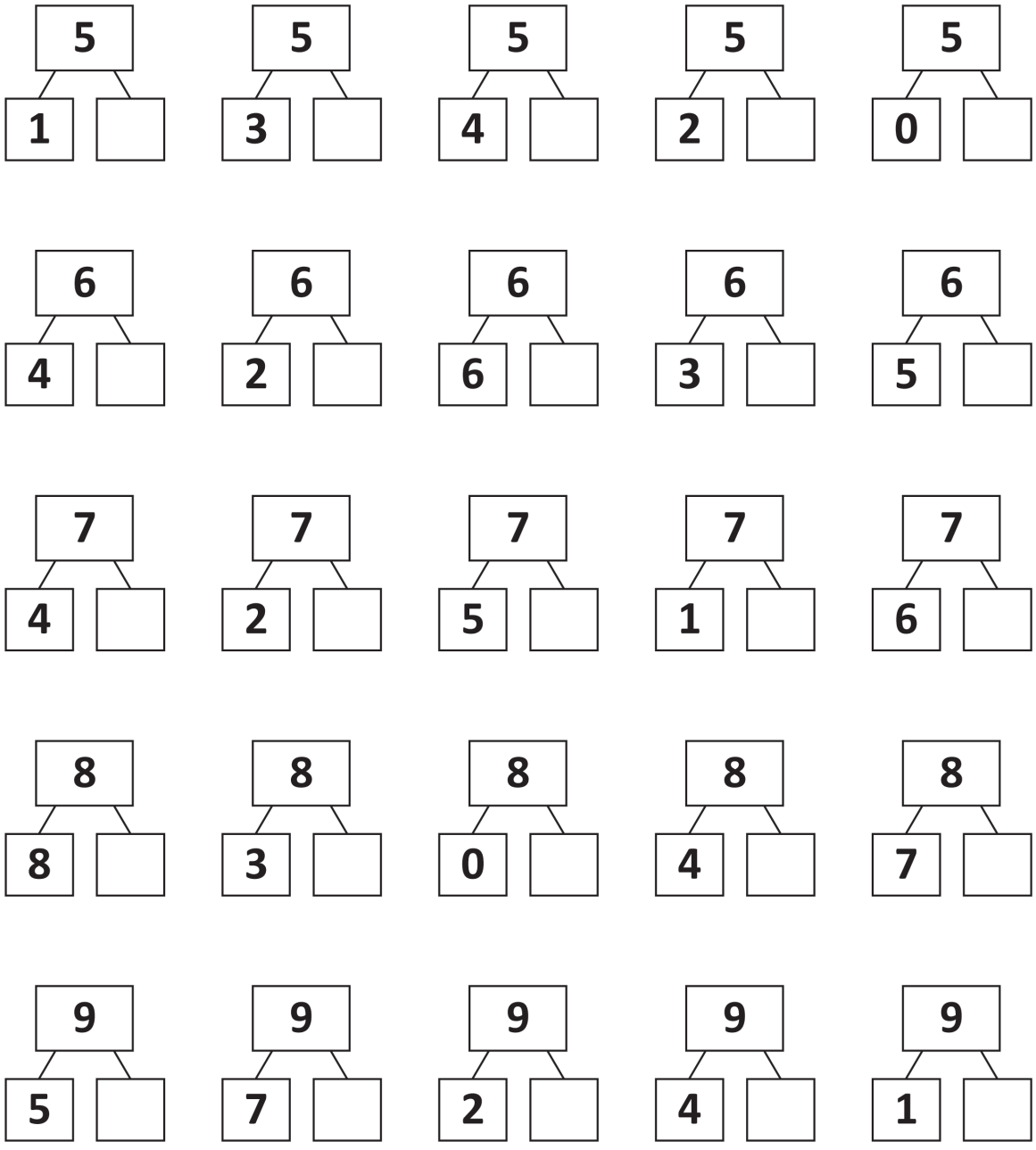




Name _____ Date _____

Finish as many number bonds as you can in 90 seconds.

Write the number of bonds you finished here: _____



number bond dash

Number Bond Dash

4	2	1	3	5
2	4	0	3	1
3	5	2	6	1
0	5	8	4	1
4	2	7	5	8

Application Problem

14 grapes

15 grapes

Answers will vary, but may include thinking about doubles.

Problem Set

Number sentences may include, but are not limited to:

1. 7 + 4 = 11; 11 = 7 + 4
2. 9 + 8 = 17; 17 = 9 + 8
3. 6 + 5 = 11; 11 = 6 + 5
4. 5 + 6 = 11; 11 = 5 + 6

Exit Ticket

Number sentences may include, but are not limited to:

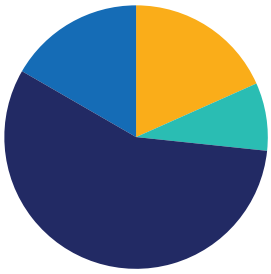
1. 9 + 7 = 16; 16 = 9 + 7
2. 8 + 5 = 13; 13 = 8 + 5

Lesson 3

Objective: Use objects and pictures to solve problems involving joining sets with 20 and unknowns as any one of the terms in the problem.

Suggested Lesson Structure

Fluency Practice	(11 minutes)
Application Problem	(5 minutes)
Concept Development	(34 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



Fluency Practice (11 minutes)

- Take Out 1 **1.3D, 1.5F** (3 minutes)
- Rekenrek Teen Numbers **1.2B, 1.3C** (3 minutes)
- Number Bond Dash **1.3B** (5 minutes)

Take Out 1 (3 minutes)

Materials: (S) Personal white board

Note: This activity reviews the *make ten* addition strategy, as students need to fluently take 1 out of the second addend when adding to 9.

Say a number between 1 and 9. Students decompose the number with one part as 1. They record the two parts on their white board. Parts can be recorded in a number bond or expression.

The pace may be increased since this is the second day completing this fluency activity.

Rekenrek Teen Numbers (3 minutes)

Materials: (T) Rekenrek, paper or cardboard to cover the hidden beads

Note: This activity also reviews the *make ten* strategy.

T: (Move 3 top beads on the Rekenrek into view). How many beads do you see?

S: 3.

T: How many more do we need to make 10?

S: 7.

T: (Move 7 more top beads into view.) 3 + 7 = ?

S: 10.

T: (Ten top beads are now showing. Move 5 beads from the bottom row into view.) How many beads are on the bottom row?

S: 5.

T: How many beads are showing in all? Let's say it the Say Ten way.

S: Ten 5.

T: Now say it the regular way.

S: Fifteen.

Continue with other examples: 7 and 3 leading to 10 and 4 more, 8 and 2 leading to 10 and 5 more, etc.

Number Bond Dash (5 minutes)

Materials: (T) Stopwatch or timer
(S) Number bond dash (Fluency Template)

Note: The number bond dash is a routine used to practice composing/decomposing numbers within 10 and to develop fluency adding and subtracting within 10.

Distribute the number bond dash, face down, to students. Instruct students to flip their papers when they hear the word "Go!" and complete as many number bonds as they can in 90 seconds. Assure them that it is okay if they run out of time before they finish. Tell them if they finish before time, they can practice counting to 20 on the back of their papers, starting with the number 5. Change the counting sequence to meet the needs of each student in later lessons.

T: (Set the timer for 90 seconds.) On your mark, get set, GO! (Press start.)

T: (When the timer goes off, tell students to put down their pencils and grab a marker to correct their work.)

T: When you get an answer correct, put a check mark on the problem number. If you make a mix-up, fix it with your marker.

T: (Read the number bonds aloud, starting with Problem 1. When the answers to all problems have been provided, tell students to write the number of problems they got correct on the blank line at the top. Encourage students to compare their scores from yesterday's lesson to track progress.)

Application Problem (5 minutes)

Materials: (T) Trucks in a box (Application Template)
(S) 20 connecting cubes, personal white board

(Display the trucks in a box template.)

Javion has 10 toy trucks. 6 trucks are on the floor, and the rest are in a box. How many toy trucks are in the box? On your personal white board, write a number sentence to match this situation. Draw a box for the unknown amount.

Next, use your connecting cubes to find the missing amount. You may work with a partner.

Note: This problem was chosen to review representing joining situations within 10 in anticipation of today's lesson in which students represent joining situations within 20. Today's Application Problem may be used as an opportunity to review different ways to write a number sentence to match a situation (i.e., 10 = 6 + 4 and 6 + 4 = 10).

Concept Development (34 minutes)

Materials: (T) Farm scenes (Template 1)
(S) 20 connecting cubes, number bond mat (Template 2)

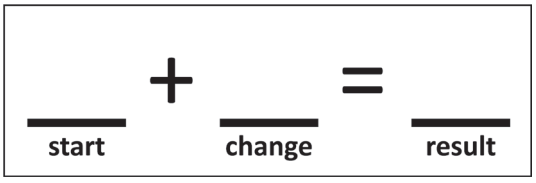
Note: The purpose of the Farm Scenes (Template 1) is to help students understand the context of each problem situation. Each image only represents the first sentence, or quantity, of the corresponding problem so the image does not reveal the answer.

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Often students learn math vocabulary and concepts in an isolated fashion. Although they may be able to use them within a math lesson, students may not transfer learning to new situations. Be sure to discuss the terms start, change, and result in other situations throughout the students' day.

Part 1: Join Problem, Result Unknown

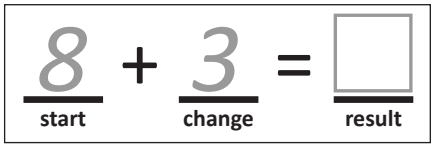
T: (Draw a blank addition number sentence on the board: ___ + ___ = ___. Write *start*, *change*, and *result* under the lines.) Today, we will solve joining problems in which we have a group of objects, and some more objects are joined to it. Sometimes we will know the starting amount. (Point to *start* on the number sentence.) Sometimes we will know the number of objects being joined to the starting amount. This is called the *change.* (Point to *change* on the number sentence.) Sometimes we will know the total, or result. (Point to *result* on the number sentence.) You need to listen carefully to decide what we know and what we are trying to find.



T: (Display the Birds at the Farm scene from the Farm Scenes template.) Listen as I read this problem. Think about what we know and what we are trying to find. *Farmer Daisy sees 8 birds sitting in the grass. Then she sees 3 birds land in the tree. How many birds does Farmer Daisy see now?* What do we know?

S: 8 birds are in the grass. → 3 birds are in the tree.

T: What are we trying to find?



S: The total number of birds Farmer Daisy sees.

T: Yes! We know the starting amount and we know how many more are being added, or the change. We can write a number sentence to match this. (Write 8 and 3 on the blank number sentence.) We need to find the total, or the result. (Draw a box to represent the total on the blank number sentence.) Use your cubes to solve. You may choose to use your number bond if you'd like.

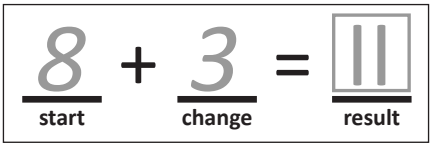
S: (Add 8 cubes and 3 cubes to make a total of 11 cubes.)

T: How did you solve this?

S: I used my number bond. I put 8 as one of my groups and 3 as my other group. Then I moved both groups up and counted a total of 11.

T: Did anyone do anything different?

S: I used my cubes to build a tower of 8 and a tower of 3. Then I moved 2 over to make a full tower of 10. Then I had 10 and 1. That's a total of 11.



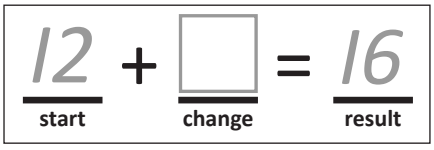
T: Yes! There are many ways we can use objects to find the total. Now we can record 11 in our number sentence.

Part 2: Join Problem, Change Unknown

T: (Draw another blank addition number sentence on the board: ___ + ___ = ___. Display the Chicks at the Chicken Coop scene from the Farm Scenes template.) Let's try another problem. Again, think about what we know and what we are trying to find. *12 chicks are playing outside. After lunch, some more chicks come outside. Now there are 16 chicks playing outside. How many chicks came outside after lunch?* What do we know?

S: At first, there were 12 chicks. Now there are 16 chicks.

T: What are we trying to find?



S: The number of chicks that came outside after lunch.

T: Let's record what we know on our number sentence. At first, there were 12 chicks. We know the starting amount. (Record 12 as an addend on the blank number sentence.) After lunch, some more came. Since we don't know the amount in that group, we'll draw a box for *change*. The result, or total, is 16 chicks. (Record a total of 16 on the blank number sentence.) Use your cubes to find our missing number. You may also use your number bond if you'd like.

S: (Use counting, addition, or subtraction to find the missing number, 4.)

T: How did you find the missing number?

S: I started with 12 cubes and added more until I got to 16. The missing group is 4. → I started with 16 cubes. I took away 12 for my first group, and I was left with 4 in my other group.

T: Great! To solve this problem, you can think addition and count up to 16. Or you can think subtraction and take away the group you know in order to get the missing group, or count back from 16 to 12. I'll write 4 on our number sentence to show the missing amount.

Part 3: Join Problem, Start Unknown

T: (Draw another blank addition number sentence on the board: ___ + ___ = ___. Display the Horses in the Barn scene from the Barn Scenes template.) Let's try another problem. Again, think about what we know and what we are trying to find. *In the morning, some horses were resting in the barn. Later in the day, 6 more horses go into the barn to rest. Now there are 12 horses resting in the barn. How many horses were in the barn in the morning?* What do we know?

S: 6 more horses go into the barn to rest. → A total of 12 horses are resting in the barn.

T: What are we trying to find?

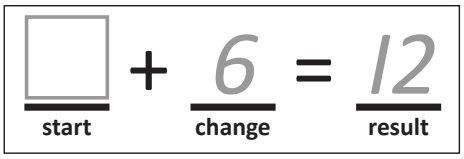
S: The number of horses that started in the barn in the morning.

T: Let's record what we know on our number sentence. We don't know the starting amount of horses in the morning, so we'll draw a box for that amount. We do know the change; 6 horses went to the barn after lunch. (Record 6 as the second addend.) We also know the total, or result, is 12 horses. (Record 12 as the result.) This time, draw a picture on your number bond to find our missing number.

S: (Draw. Then use counting, addition, or subtraction to find the missing number, 6.)

T: How did you find the missing number?

S: I started with 6 circles in one part of my number bond. Then I drew more circles in the other part of my number bond until I got to 12. The missing part is 6. → I started with 12 circles at the top of my number bond. I crossed off 6 and redrew those in a bottom part of my number bond. I was left with 6 circles to redraw in the other bottom part. → I just knew 6 and 6 makes a total of 12.



T: Yes, there are many ways to solve this problem. You can think addition and count up to 12. You can think subtraction and take away one group to get the missing group. Or you can use a known fact to help you. With this problem, the known fact is 6 + 6 = 12. I'll write 6 in our box to show the missing amount.

T: When you are faced with problems like this, think about what you know and what you are trying to find. Then you can use objects or drawings to find the missing amount.

Note: While adults tend to solve missing-addend problems (e.g., 12 + ___ = 16) using subtraction, students do not typically relate subtraction to such problems. Instead, they use addition-related counting strategies. It is important to allow students to construct their own strategies in ways that are meaningful to them and not lead them to a subtraction procedure. For this reason, this lesson does not refer to today's problems as *addition* problems. Rather, they are called *joining* problems.

Problem Set (10 minutes)

Read each problem aloud. After reading the problem, pause for students to solve. Reread as needed. Students should do their personal best to complete the Problem Set within the allotted time.

The goal of this lesson is to solve problems using objects. Students are asked to record number sentences in order to identify known and unknown information, but it is not a necessary goal of the lesson. If differentiation is needed, the number sentences may be omitted.

Student Debrief (11 minutes)

Lesson Objective: Use objects and pictures to solve problems involving joining sets with 20 and unknowns as any one of the terms in the problem.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- How might you make a ten to solve Problem 1?
- Talk to a partner about how you solved Problem 2. What was the same about your work? What was different? Is there more than one way to find the answer?
- How did you use cubes to solve Problem 2? What number did you start with?
- How did you draw a picture to solve Problem 5? What number did you start with?
- What number sentence did you use to represent this problem?
- Why might it be important to read a problem more than once?
- Why might it be important to write a number sentence with a box for the unknown amount?

Exit Ticket (5 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

Name _____ Date _____

Write a number sentence to match the problem. Put a box for the unknown amount. Use connecting cubes to solve. You may use your number bond mat if you choose. Write the answer in your box.

1. Farmer Daisy picked 9 tomatoes from her garden. The next day, she picked 4 tomatoes from her garden. How many tomatoes did Farmer Daisy pick?

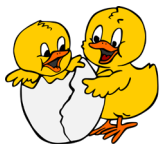
Number Sentence: _____ + _____ = _____

2. On Monday, Farmer Daisy collected 12 eggs from the chicken coop. On Tuesday, she collected some more eggs. Altogether, Farmer Daisy collected 20 eggs. How many eggs did she collect on Tuesday?

Number Sentence: _____ + _____ = _____

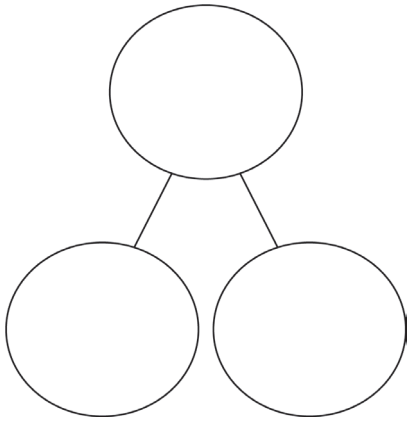
3. In the spring, some baby chicks hatched. In the summer, 7 more chicks hatched. If 11 chicks hatched in all, how many hatched in the spring?

Number Sentence: _____ + _____ = _____



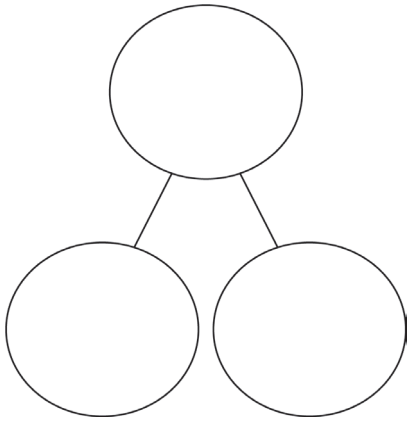
Write a number sentence to match the problem. Put a box for the unknown amount. Then draw a picture in the number bond to solve. Write the answer in your box.

4. Farmer Daisy picked 8 beans from her garden. The next day, she picked 6 beans. How many beans did Farmer Daisy pick altogether?



Number Sentence: _____ + _____ = _____

5. On Monday, Farmer Daisy picked 9 carrots from the garden. On Tuesday, she picked some more carrots. Altogether, Farmer Daisy picked 15 carrots. How many carrots did she pick on Tuesday?

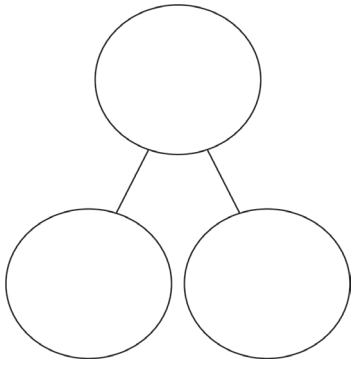


Number Sentence: _____ + _____ = _____

Name _____ Date _____

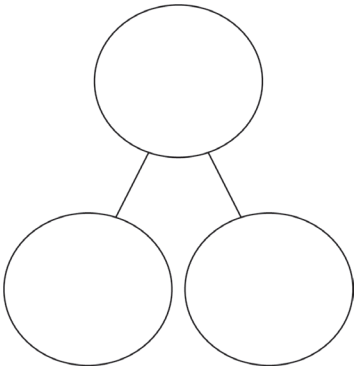
Write a number sentence to match the problem. Put a box for the unknown amount. Then use objects or draw a picture to solve. Write the answer in your box.

1. Farmer Daisy had 7 cows. She bought some more cows from the market. Now Farmer Daisy has 12 cows. How many cows did Farmer Daisy buy from the market?



Number Sentence: _____ + _____ = _____

2. Yesterday, Farmer Daisy picked some peppers from her garden. Today, she picked 8 more peppers. She picked 18 peppers in all. How many peppers did Farmer Daisy pick yesterday?

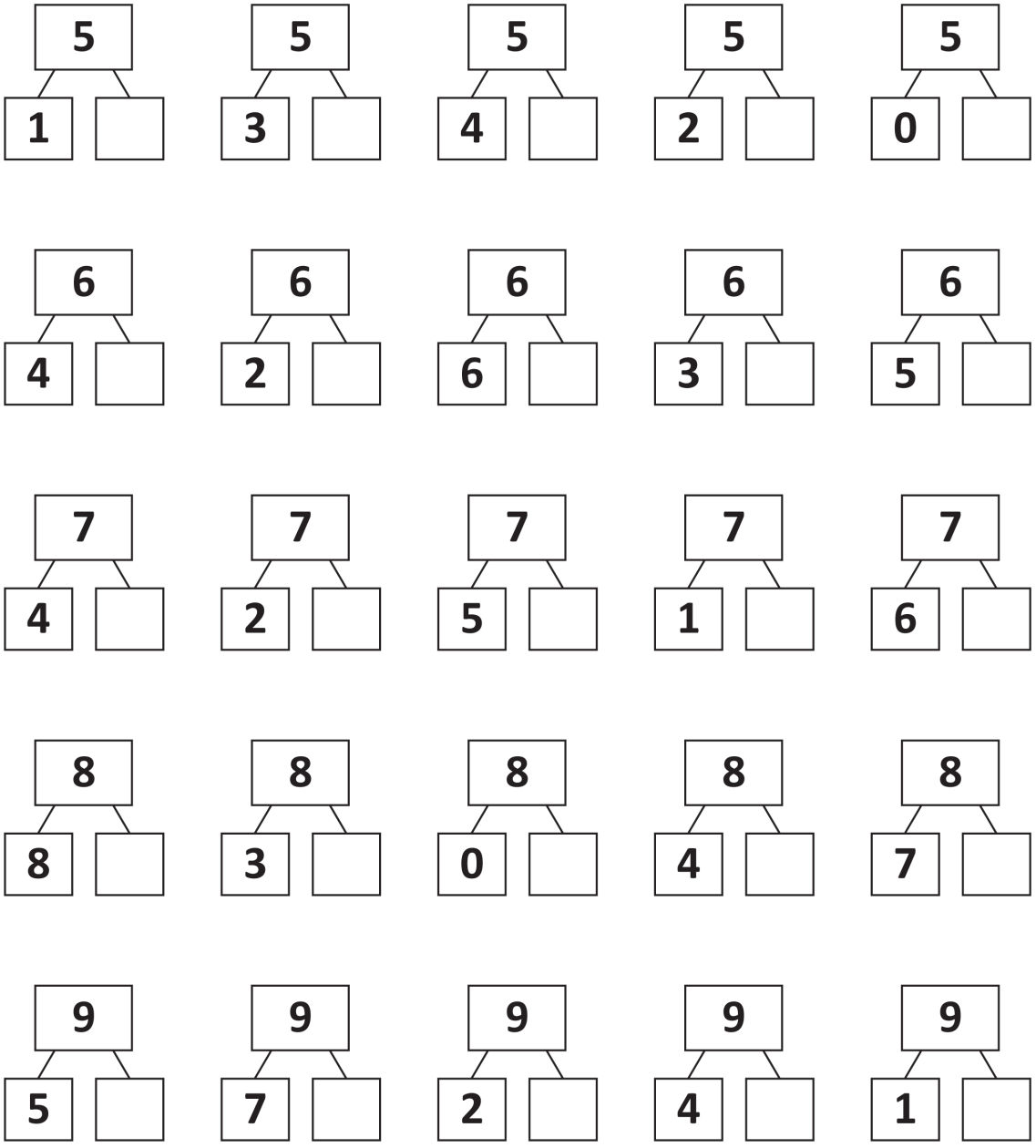


Number Sentence: _____ + _____ = _____

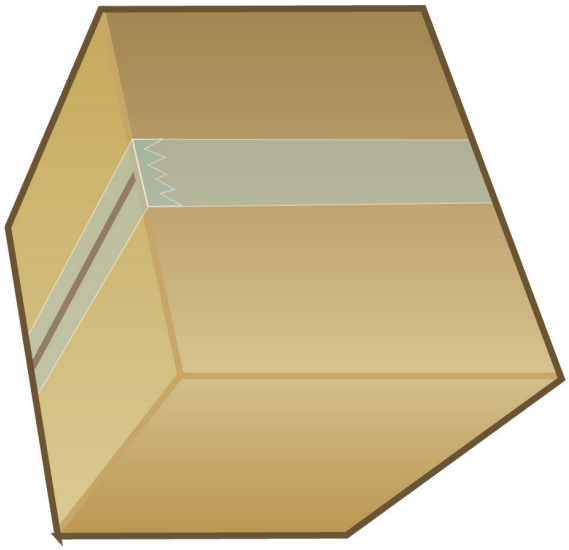
Name _____ Date _____

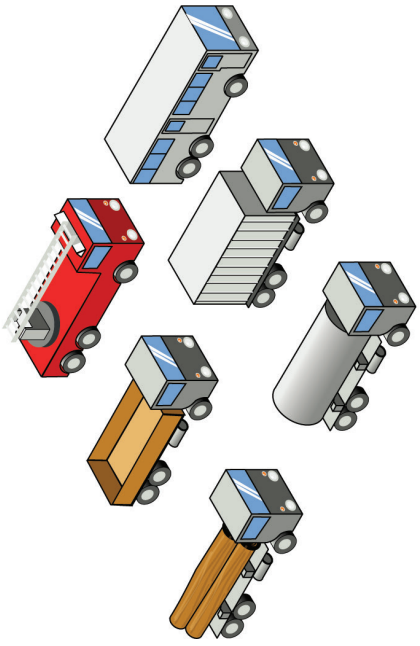
Finish as many number bonds as you can in 90 seconds.

Write the number of bonds you finished here: _____



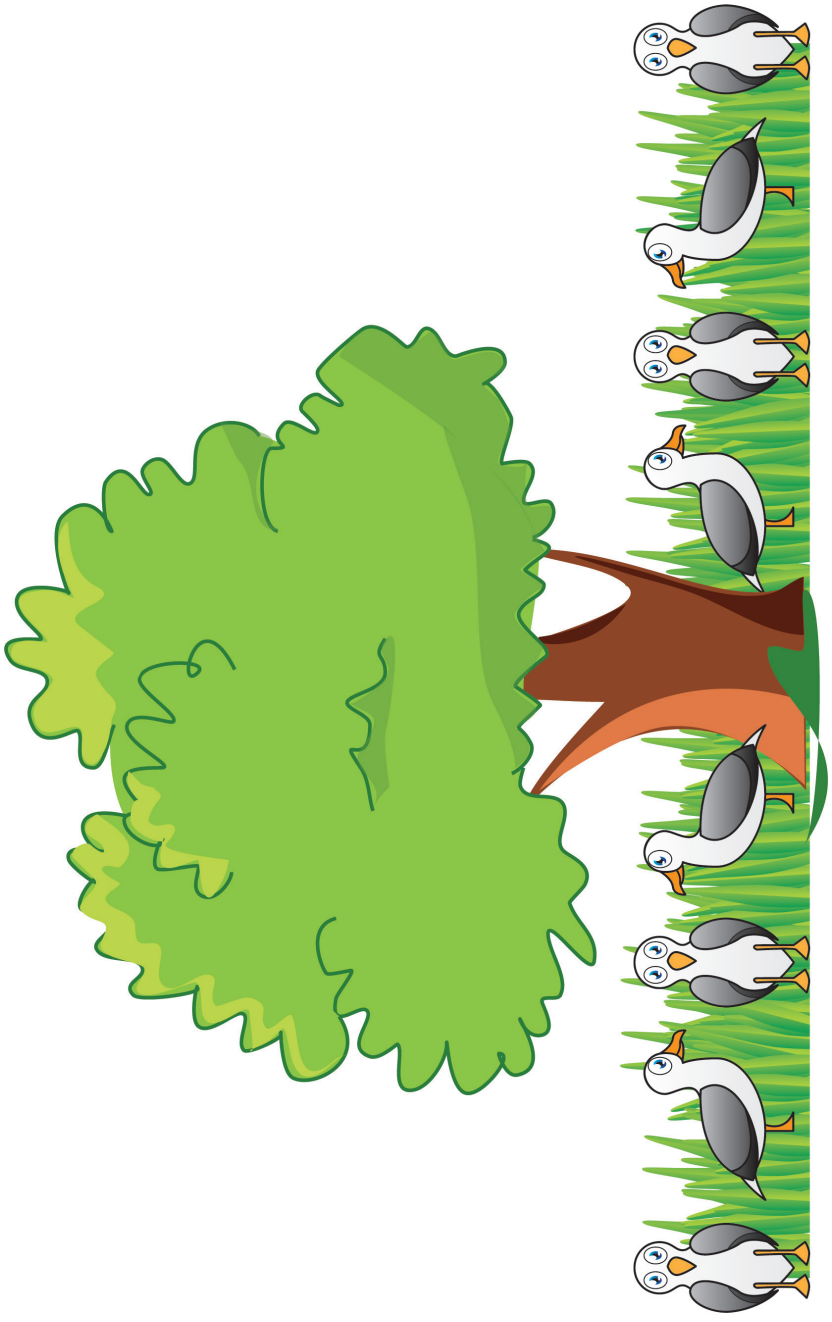
number bond dash



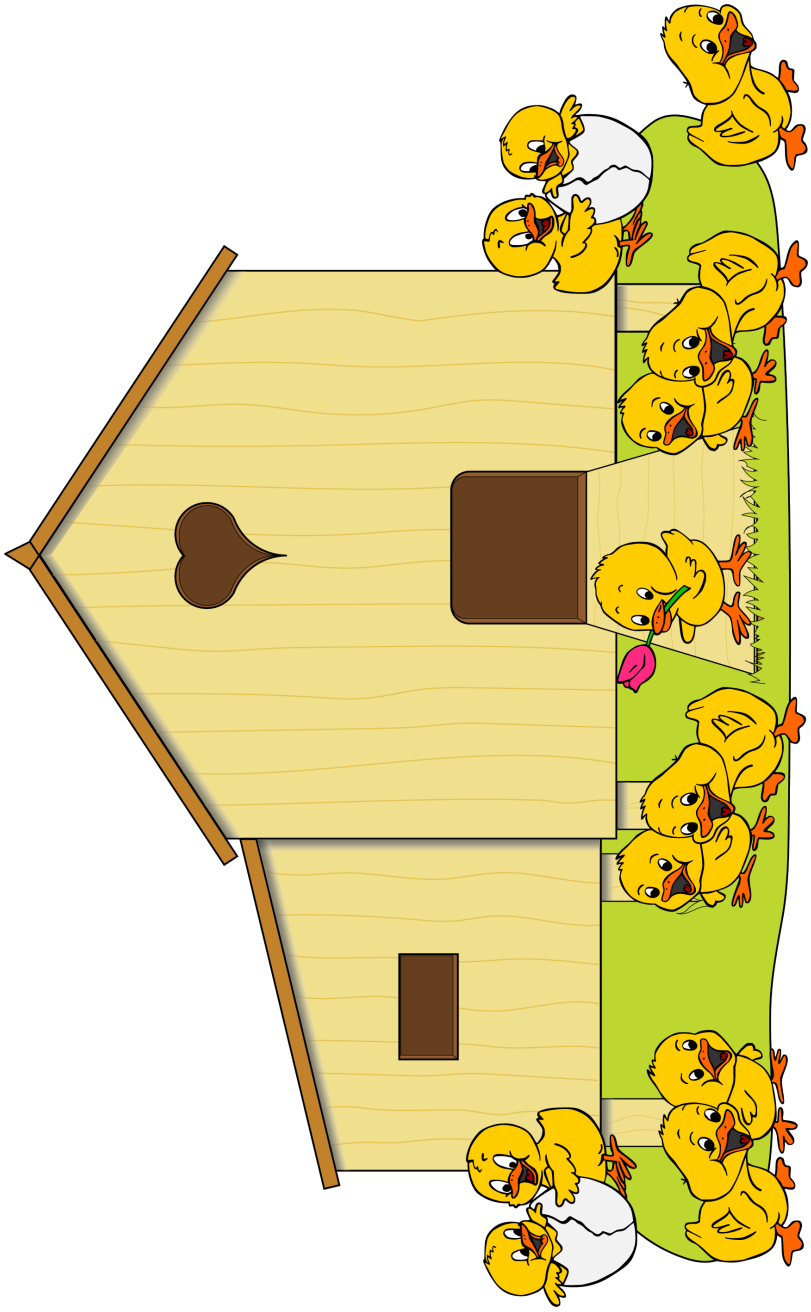


10 trucks in all

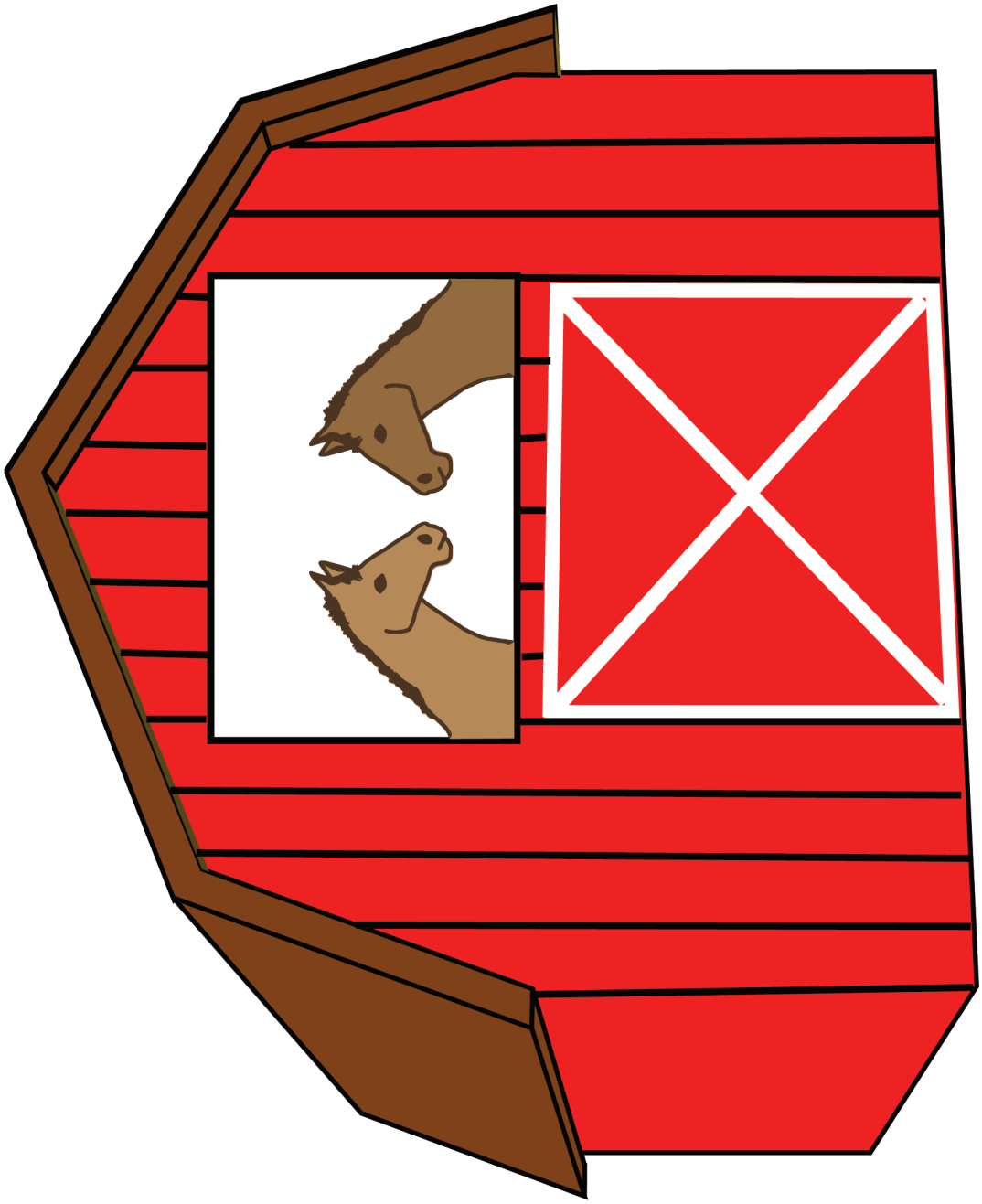
Trucks in a box



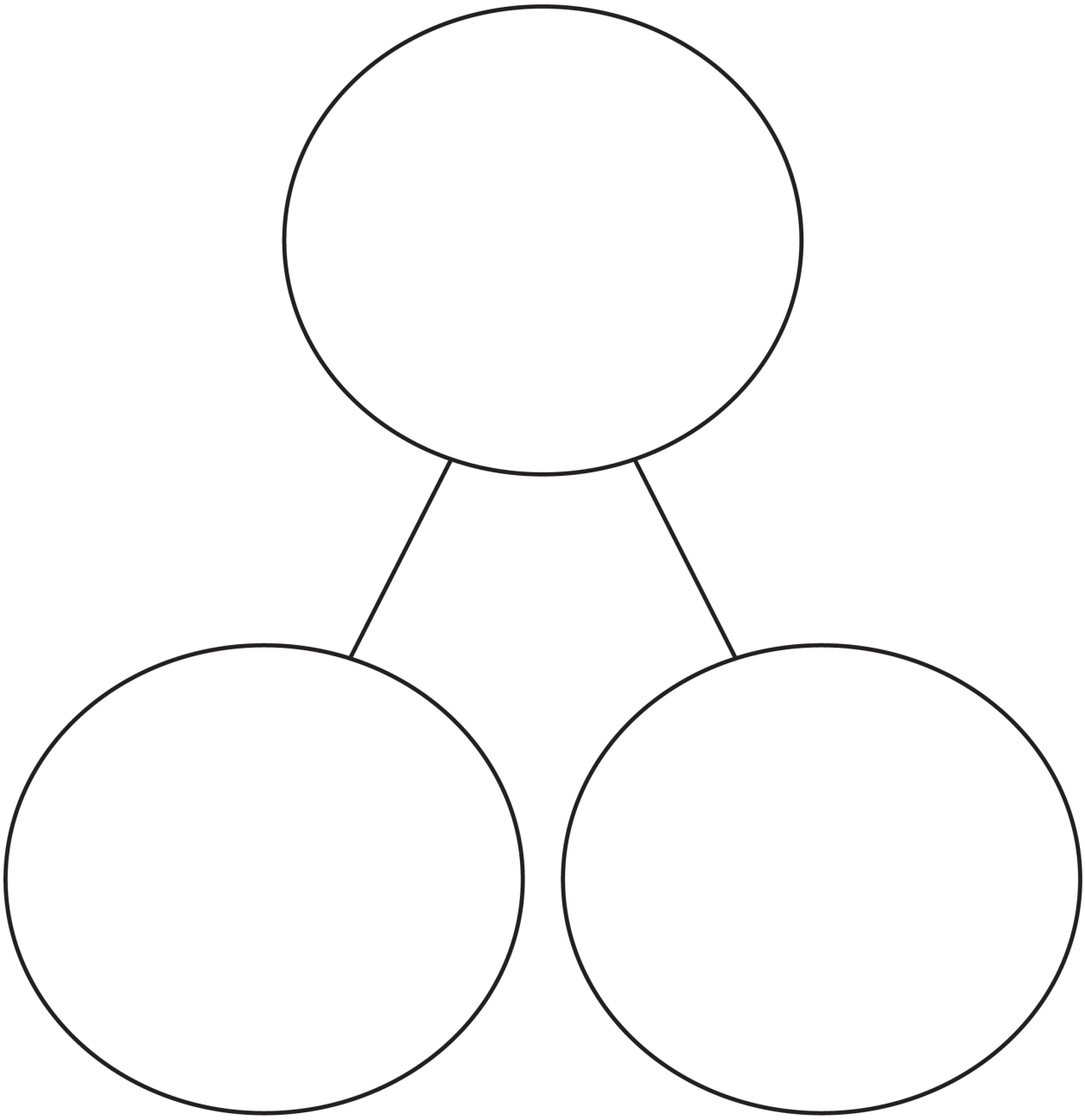
farm scenes (birds at the farm)



farm scenes (chicks at the chicken coop)



farm scenes (horses in the barn)



number bond mat

Number Bond Dash

4	2	1	3	5
2	4	0	3	1
3	5	2	6	1
0	5	8	4	1
4	2	7	5	8

Application Problem

Number sentences will vary, but may include 6 + 4 = 10; 4 trucks

Problem Set

1. 9 + 4 = **13**
2. 12 + **8** = 20
3. **4** + 7 = 11
4. 8 + 6 = **14**
5. 9 + **6** = 15

Exit Ticket

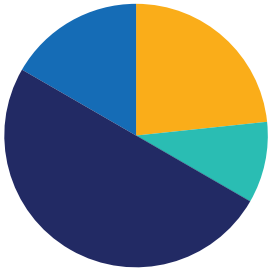
1. 7 + **5** = 12
2. **10** + 8 = 18

Lesson 4

Objective: Represent subtraction word problems within 20 using concrete models.

Suggested Lesson Structure

Fluency Practice	(14 minutes)
Application Problem	(6 minutes)
Concept Development	(30 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



Fluency Practice (14 minutes)

- 5-Group Flash: Partners to 10 **K.2D, 1.3D** (4 minutes)
- Break Apart 10 **1.3D** (3 minutes)
- Sprint: Add Three Numbers **1.3C, 1.3D** (7 minutes)

5-Group Flash: Partners to 10 (4 minutes)

Materials: (T/S) 5-group cards (Fluency Template)

Note: This activity reviews adding and subtracting within 10.

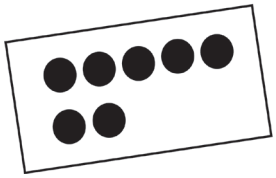
Flash 5-group cards for 2–3 seconds and then instruct students to say the number at the snap of your fingers. On the second snap, ask students to identify the missing number needed to make a total of 10. Students may use their fingers, count up to ten, or count down to the number shown on the 5-group card.

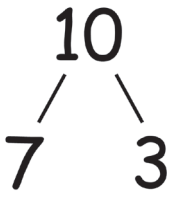
Begin by flashing higher numbers to facilitate finding the partner to 10 so that all students can feel successful. For example, start with 9 so students can see 1 more dot is needed to make 10.

Break Apart 10 (3 minutes)

Materials: (T) 5-group cards (Fluency Template)
(S) Personal white board

Students draw a number bond at the top of their white boards and write the numeral 10 as the total. Flash a 5-group card. Students break apart 10 using the number flashed as a part. Then they record the missing part.





Sprint: Add 3 Numbers (7 minutes)

Materials: (S) Add Three Numbers Sprint

Note: This Sprint provides practice with adding three numbers by making ten first.

Provide 5 minutes for students to answer as many questions on the Sprint as possible. When time is up, review the answers. Pause to draw attention to the numbers within each problem, noticing that certain numbers can be combined to make the friendly number 10. For example, in the problem 8 + 3 + 2, the 8 and 2 can be added first. Then students can add 10 and 3.

Application Problem (6 minutes)

Materials: (S) Problem-solving mat (Template), beans

Jana has 6 books. 5 books are about baseball, and the rest are about horses. How many horse books does Jana have? Use your beans and problem-solving mat to solve.

Extension: Scott also has 6 books. 1 book is about birds, and the rest are about soccer. How many soccer books does Scott have? Use your beans and problem-solving mat to solve. How can you use your answer from the first problem to solve the second problem?

Note: These problems were chosen to review subtraction within 10 in anticipation of today's lesson in which students subtract within 20. Further, these problems were selected to help students see that problems are sometimes related; solving one problem (6 − 5 = 1) can help solve a related problem involving the same numbers (6 − 1 = 5).

Concept Development (30 minutes)

Materials: (T) Problem-solving mat (Template), beans, document camera
(S) Problem-solving mat (Template), beans

Part 1: Subtracting Stones

T: What are some things people do at the beach?

S: Play in the sand. → Swim. → Play with a beach ball.

T: What are some things people might see at the beach?

S: Birds. → Seashells. → Crabs. → Fish.

T: The other day, I visited the beach. One of my favorite things to do at the beach is to toss stones into the ocean, trying to make them skip across the water. I had 15 stones. Represent this amount on your problem-solving mat. You can use the ten-frames or number bond on your problem-solving mat.

S: (Place 15 beans on the problem-solving mat.)

T: I tossed 6 stones into the water. How can you show this on your mat?

S: Take away 6 beans.

T: Great. Take away 6 beans. Then find the number of stones I had left.

S: (Take away 6 beans and find 9 beans left.)

T: How many stones did I have left? How did you get your answer?

S: I took away 6. Then I counted and found 9 beans were left on my mat.

T: Did anyone do something else?

S: As I took away 6, I counted back. I said one number for each bean I took away. 14, 13, 12, 11, 10, 9.

T: Yes. Anytime you solve a problem like this, you can take away part and count your leftovers. Or you can count back as you take away part. Be sure to say one number for each object you take away.

Part 2: Subtracting People

T: Now let's try another problem. *I saw 16 people at the beach. 8 people were adults, and the rest were children. How many children did I see?* Represent this problem on your problem-solving mat. You may use ten-frames or the number bond. Then share your solution with a partner.

S: (Show a set of 16. Break away 8 to find the missing part, 8.)

T: How many children did I see at the beach? How did you solve this?

S: I put 16 beans on my ten-frames, then I took away 8 and counted the leftover amount. You saw 8 children.

T: Did anyone do something different?

S: I put 16 beans at the top of my number bond. I moved 8 down to one of the bottom parts of my number bond. As I did this, I counted back. 15, 14, 13, 12, 11, 10, 9, 8.

T: Did anyone do something different?

S: I used my doubles facts! I know 8 and 8 make a total of 16. So the missing part is 8.

T: There are many ways to solve problems like this. You can take away part and count the amount that's left. You can take away part while counting back. And you can even use a known fact to find the answer.

Note: The primary goal of this lesson is to represent problems using objects. A secondary goal is for students to share their problem-solving strategies. When students are given problems and allowed to select procedures meaningful to them, they construct their own strategies. Students adapt these strategies as they share ideas. Initially, students use visual representations to model actions and relations in problems. Next, they begin to use more efficient counting strategies. Eventually, students move toward using known facts to find a missing amount.

Problem Set (10 minutes)

Read each problem aloud. After reading the problem, pause for students to solve. Reread as needed. Students should do their personal best to complete the Problem Set within the allotted time.

Note: The Problem Set was intentionally developed to expose students to a variety of problem types. Problems 1 and 2 are examples of *take from with result unknown* problems. With this problem type, there is an action as items are physically being separated. Problems 3 and 4 are examples of *take apart with total unknown* problems. With this problem type, there is no action. For example, part of a set is one color and part is a different color. The students are asked to find the amount in the unknown part. Generally, students prefer to solve *result unknown* problems because they can be acted out.

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

If students need support recording on the Problem Set, consider having them record their thinking using a device that records audio and/or video. Make the recordings available for listening by other students.

Student Debrief (10 minutes)

Lesson Objective: Represent subtraction word problems within 20 using concrete models.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- Look at Problem 1. Talk to a partner about how you each found the answer. What is the same about the ways you solved Problem 1? What is different?
- How did you use beans to represent this problem?
- How could you use counting to get your solution?
- How might you use known facts to solve Problem 2?
- On your personal white board, write an answer to the following question: How might the solution for Problem 3 help you find the solution to Problem 4? Then, share your answer with a partner.

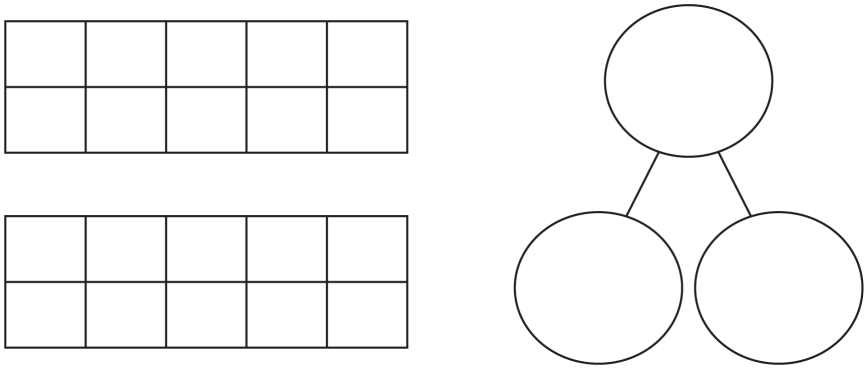
Exit Ticket (5 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

Name _____ Date _____

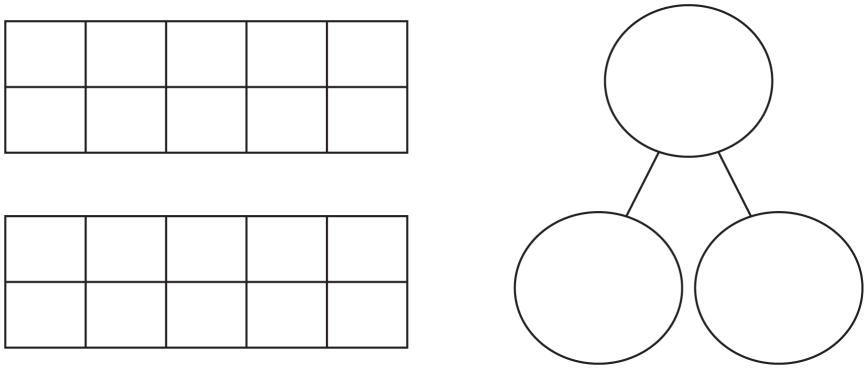
Use beans and your problem-solving mat to model each problem.
Draw a picture to match your work, and write your answer on the line.

1. Mila saw 13 birds in the ocean. 6 birds flew away. How many birds does Mila see in the ocean now?



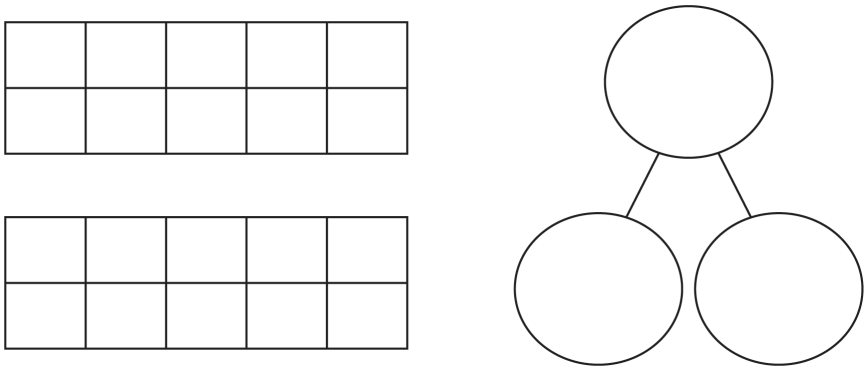
_____ birds

2. Morgan has 12 seashells. He tosses 6 seashells into the water. How many seashells does Morgan have now?



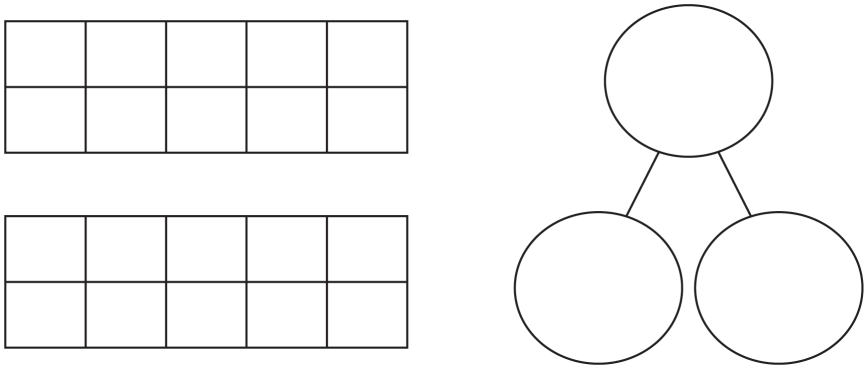
_____ seashells

3. There are 20 kids at the beach. 8 kids are swimming in the water, and the rest are playing on the sand. How many kids are playing on the sand?



_____ kids

4. There are 20 crabs sitting on the sand. 12 crabs are blue, and the rest are red. How many red crabs are sitting on the sand?

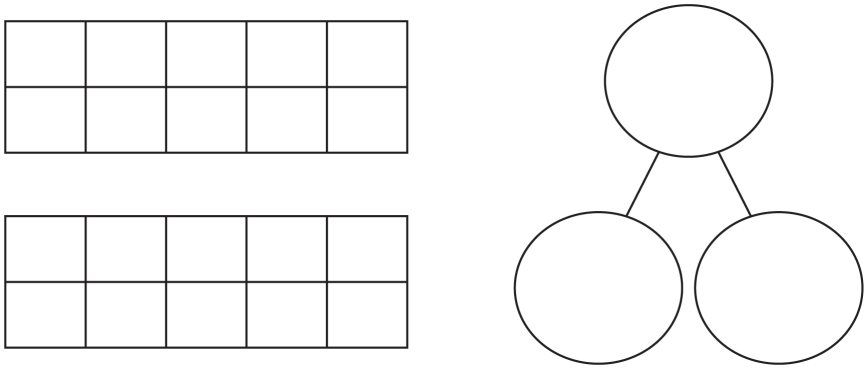


_____ red crabs

Name _____ Date _____

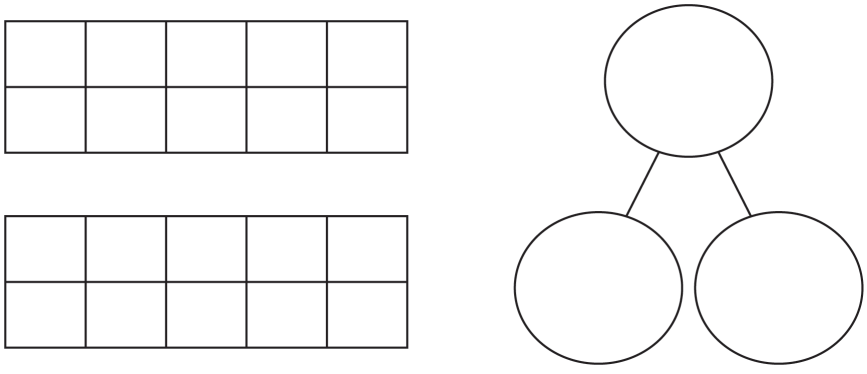
Use beans and your problem-solving mat to model each problem.
Draw a picture to match your work, and write your answer on the line.

1. A group of children are playing with 14 beach balls. 5 beach balls roll away. How many beach balls do the children have now?



_____ beach balls

2. Layla has 17 seashells. 4 are smooth, and the rest are bumpy. How many bumpy seashells does Layla have?

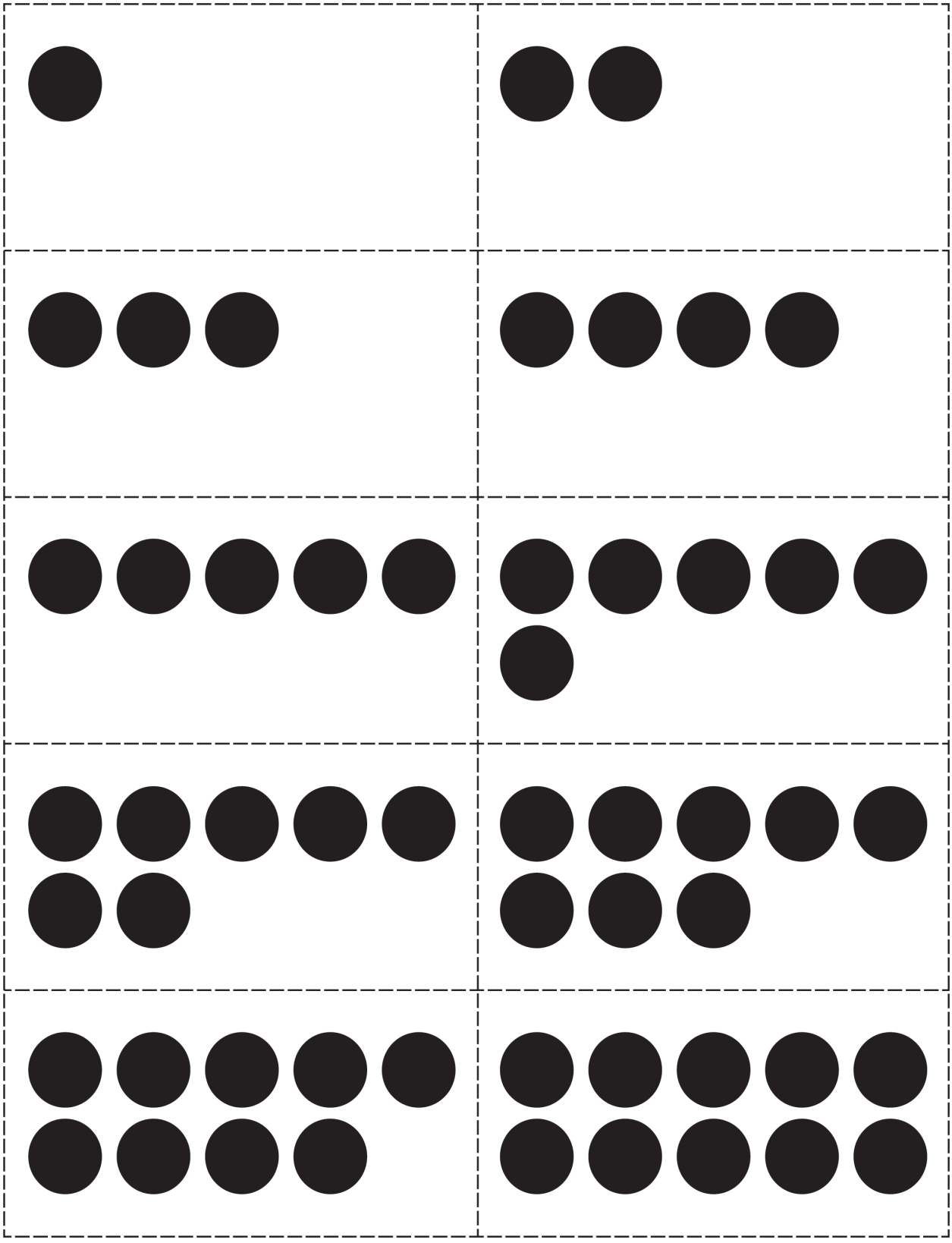


_____ bumpy seashells

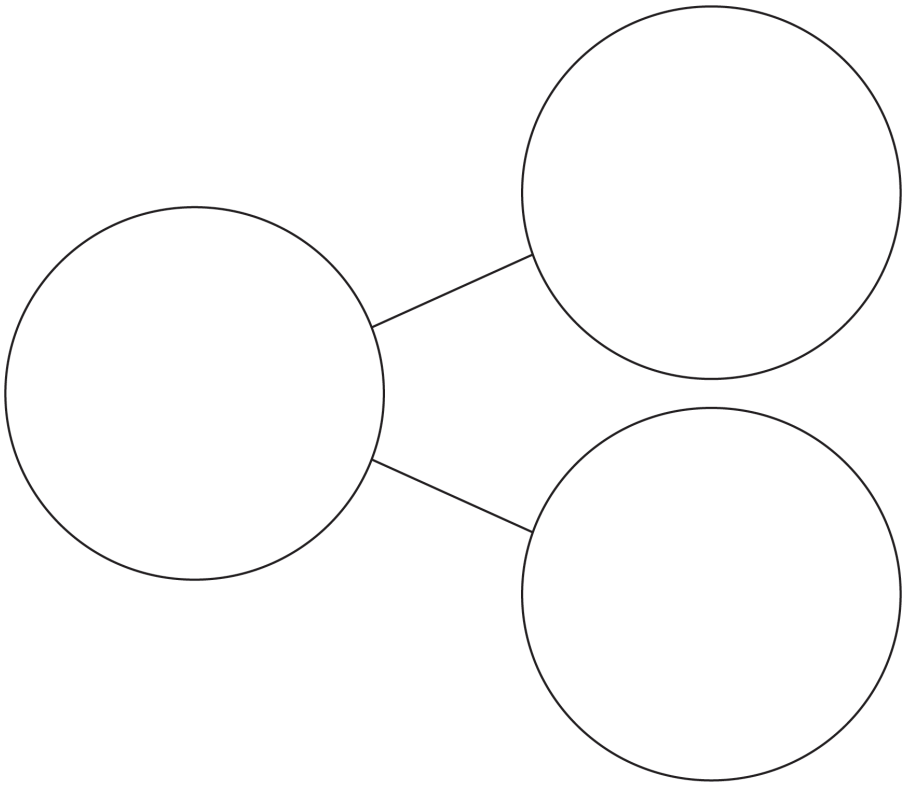
Name _____ Date _____

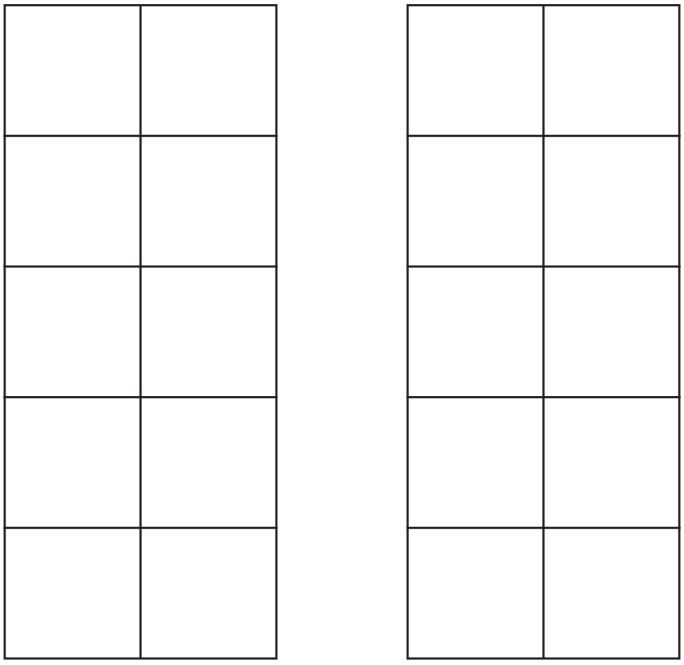
Sprint - Add 3 Numbers

1.	9 + 1 + 5 = _____		16.	3 + 6 + 7 = _____	
2.	1 + 9 + 2 = _____		17.	4 + 7 + 3 = _____	
3.	9 + 3 + 1 = _____		18.	5 + 3 + 7 = _____	
4.	1 + 7 + 9 = _____		19.	6 + 4 + 8 = _____	
5.	4 + 9 + 1 = _____		20.	7 + 6 + 4 = _____	
6.	6 + 1 + 9 = _____		21.	6 + 4 + 2 = _____	
7.	8 + 2 + 5 = _____		22.	4 + 9 + 6 = _____	
8.	7 + 8 + 2 = _____		23.	1 + 6 + 4 = _____	
9.	8 + 2 + 2 = _____		24.	5 + 4 + 6 = _____	
10.	2 + 7 + 8 = _____		25.	5 + 5 + 4 = _____	
11.	3 + 8 + 2 = _____		26.	3 + 5 + 5 = _____	
12.	5 + 2 + 8 = _____		27.	5 + 9 + 5 = _____	
13.	7 + 3 + 5 = _____		28.	1 + 5 + 5 = _____	
14.	1 + 7 + 3 = _____		29.	5 + 5 + 2 = _____	
15.	7 + 3 + 4 = _____		30.	5 + 8 + 5 = _____	



5-group cards





problem-solving mat

Add 3 Numbers Sprint

1. 15
2. 12
3. 13
4. 17
5. 14
6. 16
7. 15
8. 17
9. 12
10. 17
11. 13
12. 15
13. 15
14. 11
15. 14
16. 16
17. 14
18. 15
19. 18
20. 17
21. 12
22. 19
23. 11
24. 15
25. 14
26. 13
27. 19
28. 11
29. 12
30. 18

Application Problem

1 horse book
5 soccer books
Answers will vary, but may include using a related problem.

Problem Set

1. 7 birds
2. 6 seashells
3. 12 kids
4. 8 red crabs

Exit Ticket

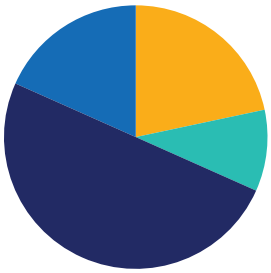
1. 9 beach balls
2. 13 bumpy seashells

Lesson 5

Objective: Represent subtraction word problems within 20 using pictorial models and number sentences.

Suggested Lesson Structure

Fluency Practice	(13 minutes)
Application Problem	(6 minutes)
Concept Development	(30 minutes)
Student Debrief	(11 minutes)
Total Time	**(60 minutes)**



Fluency Practice (13 minutes)

- Take Out Two **1.3D, 1.5F** (4 minutes)
- Partners to Ten **1.3D, 1.5G** (5 minutes)
- Add Partners of Ten First **1.3C, 1.3D, 1.5G** (4 minutes)

Take Out Two (4 minutes)

Materials: (S) Personal white board

Note: This activity supports the *make ten* strategy. Students take 2 from the number given. The goal is for them to be able to do so quickly and accurately.

T: Take out two on my signal. For example, if I say "5," you say "2 and 3."

T: 3.

S: 2 and 1.

T: 10.

S: 2 and 8.

Continue with all numbers within 10. Then give students one minute of practice with a partner. Repeat the set as a whole class and celebrate improvement.

Partners to Ten (5 minutes)

Materials: (S) 1 set of numeral cards (Fluency Template) per pair of students, personal white board

Note: This fluency activity provides maintenance with partners to ten while applying the commutative property.

Pairs of students put the stack of numeral cards face down between them and write 10 on their personal white boards. Each student takes a numeral card. They each draw a number bond on their board and find partners of 10 using the numeral card as one partner. Then each student writes two addition sentences for their number bond and checks the other student's work.

Add Partners of Ten First (4 minutes)

Note: This activity reviews adding three numbers and reviews the *make ten* addition strategy when one addend is 9.

Build toward three addends. Begin with 9 + 1.

T: 9 + 1.

S: 10.

T: 10 + 5.

S: 15.

T: 9 + 1 (pause) + 5 is...?

S: 15.

Continue with the suggested sequence: 9 + 1 + 6; 9 + 1 + 4; 9 + 1 + 3; 9 + 1 + 7; and 8 + 2 + 7.

Application Problem (6 minutes)

Materials: (S) Problem-solving mat (Lesson 1 Template), beans

Leo found 14 butterflies. 9 were yellow, and the rest were orange. How many orange butterflies did Leo find? Use your beans and problem-solving mat to solve.

Extension: Suk also found 14 butterflies. 5 were brown, and the rest were blue. How many blue butterflies did Suk find? Use your beans and problem-solving mat to solve. How can you use your answer from the first problem to solve the second problem?

Note: These problems were chosen to review representing subtraction with objects in anticipation of today's lesson in which students represent subtraction problems with drawings and number sentences. Further, these problems were selected to help students see that problems are sometimes related; solving one problem (14 − 9 = 5) can help solve a related problem involving the same numbers (14 − 5 = 9).

Concept Development (30 minutes)

Materials: (S) Problem-solving mat (Lesson 1 Template)

Part 1: Representing Subtraction on a Ten-Frame

T: During yesterday's lesson, we represented problems using objects. Today, we will represent problems about a carnival using drawings and number sentences. What are some things people might do at a carnival?

S: Play games. → Eat food. → Go on rides. → Walk around.

T: One of my favorite things to do at a carnival is go on roller coasters. The other day, I went to a carnival. I bought 16 ride tickets. Draw pictures on your ten-frames to show how many ride tickets I bought.

S: (Draw 16 circles or shapes to represent the ride tickets.)

T: I used 7 tickets to ride the roller coaster. How many tickets did I have left over? Use your drawing to find the answer.

S: (Subtract to find the number of leftover tickets.)

T: How many tickets were left? How did you get that answer?

S: I crossed out 7 tickets. I counted the leftovers and got 9.

T: One way to solve a subtraction problem using drawings is to cross off the amount you are taking away. Then count the leftovers. Did anyone do something different?

S: I drew 16 circles on my ten-frames. Then I crossed off 7 circles, one at a time. As I crossed them off, I counted back. 15, 14, 13, 12, 11, 10, 9.

T: Another way to solve a subtraction problem using drawings is to cross off one item at a time as you count back. How can we record a subtraction number sentence to match this problem?

S: 16 − 7 = 9.

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

It's important to ask questions for comprehension during this lesson because it guides students to consider their thinking. This provides students an opportunity to evaluate their process and analyze errors.

Part 2: Representing Subtraction on a Number Bond

T: Now let's solve another problem about the carnival. Next, I bought 16 candy apples. Draw 16 circles at the top of your number bond to represent my candy apples.

S: (Draw 16 apples.)

T: 9 of my candy apples were green, and the rest were red. Use your drawings on the number bond to find the number of green apples I bought.

S: (Subtract to find the number of red apples.)

T: How many red apples did I have? How did you get your answer?

S: I broke apart 16 into parts. I crossed out 9 and redrew 9 circles in one of the bottom parts of my number bond. Then I counted my leftovers, 7 circles. I crossed them out and redrew the 7 circles in the other bottom part of my number bond.

T: Yes. You can break apart the set into two parts. One part would be redrawn in one of the bottom parts of your number bond. The other part would be redrawn in the other part of your number bond. Did anyone do something different?

S: I saw that our first problem said 16 take away 7 is equal to 9. I know I can move the parts around and the total won't change, so I know 16 take away 9 is equal to 7.

T: Great! There are so many ways we can use our drawings and what we know about math to find the answer to a subtraction problem. What number sentence can we write to match this problem?

S: 16 – 9 = 7.

T: Today and everyday, you can represent subtraction problems using drawings and number sentences.

Note: The primary goal of this lesson is to represent problems using drawings. A secondary goal is for students to share their problem-solving strategies. When students are given problems and allowed to select procedures meaningful to them, they construct their own strategies. Students adapt these strategies as they share ideas. Initially, students use objects or visual representations to model actions and relationships in problems. Eventually, they begin to use more efficient counting strategies.

Problem Set (10 minutes)

Read each problem aloud. After reading the problem, pause for students to solve. Reread as needed. Students should do their personal best to complete the Problem Set within the allotted time.

Note: The Problem Set was intentionally developed to expose students to a variety of problem types. Problems 1 and 2 are examples of *take from with result unknown* problems. With this problem type, there is an action as items are physically being separated. Problems 3 and 4 are examples of *take apart with total unknown* problems. With this problem type, there is no action. For example, part of a set is one color and part is a different color. The students are asked to find the amount in the unknown part. Generally, students prefer to solve *result unknown* problems because they can be acted out.

Student Debrief (11 minutes)

Lesson Objective: Represent subtraction word problems within 20 using pictorial models and number sentences.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- Look at Problem 1. Talk to a partner about how you each found the answer. What is the same about the ways you solved Problem 1? What is different?
- How did you use a drawing to represent this problem?
- Look at Problem 2. How do your drawings on the ten frames match your number sentence?
- Look at Problem 2. How do your drawings on the number bond match your number sentence?
- Why are number bonds and ten frames helpful when solving problems?
- How could you use counting to get the solution to Problem 3?
- How might the solution for Problem 3 help you find the solution to Problem 4?

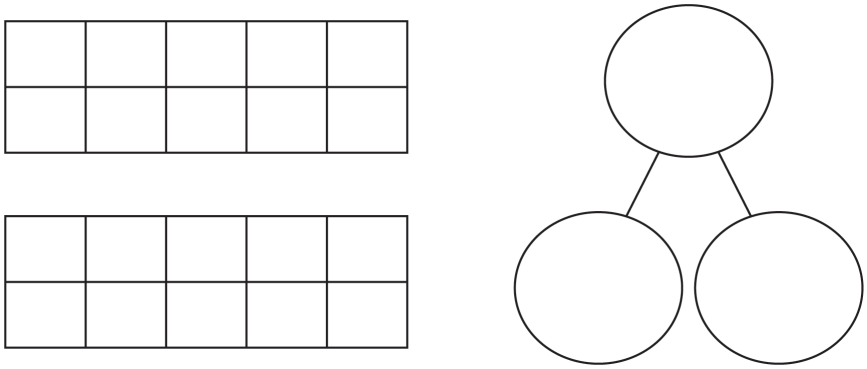
Exit Ticket (5 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

Name _____ Date _____

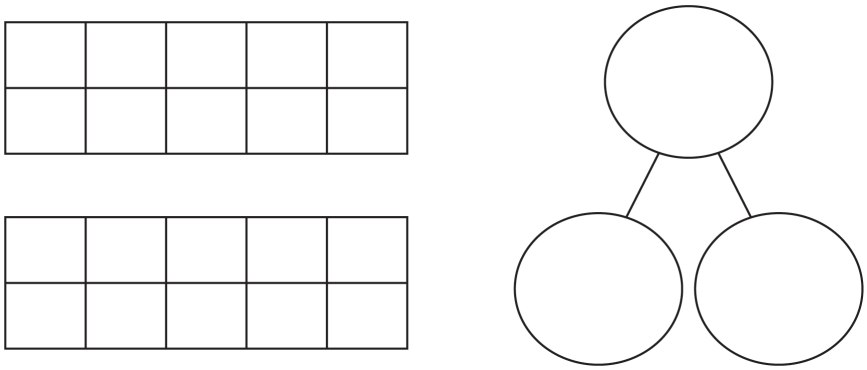
Draw pictures on the ten-frames or number bond to solve each problem.
Then write a number sentence to match your work.

1. Lara has 20 tickets to use at the carnival. She uses 13 tickets to go on rides. How many tickets does Lara have now?



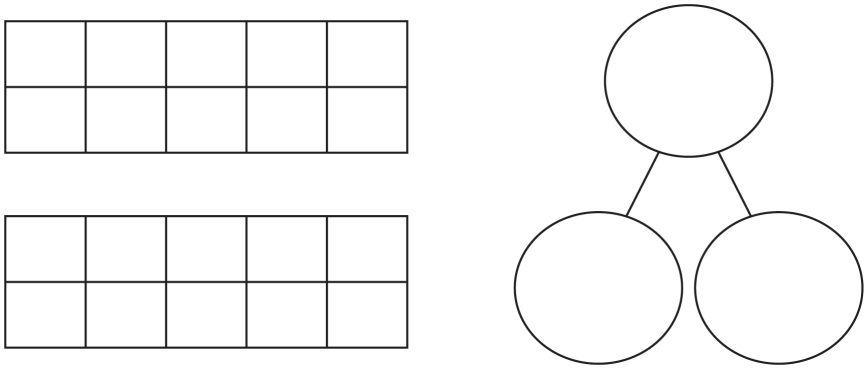
Number sentence: _____

2. Jamal and his brother buy 14 corn dogs. They eat 7 of them. How many corn dogs do the boys have left?



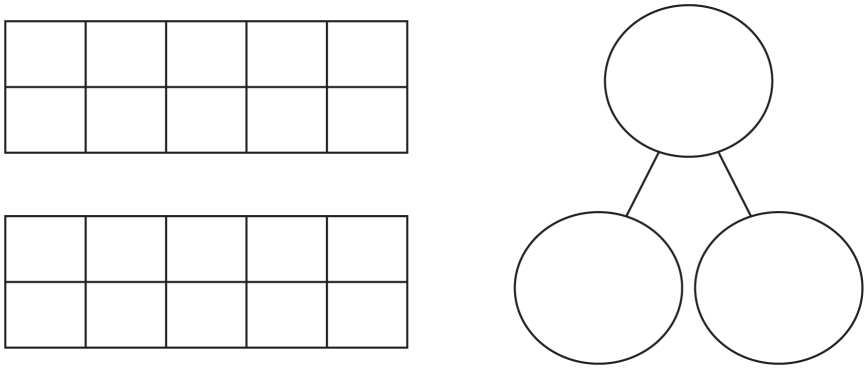
Number sentence: _____

3. There are 12 seats on the roller coaster. 8 seats are filled with people, and the rest are empty. How many empty seats are on the roller coaster?



Number sentence: _____

4. Marta buys 12 donuts. 4 donuts have sprinkles, and the rest are plain. How many plain donuts does Marta buy?

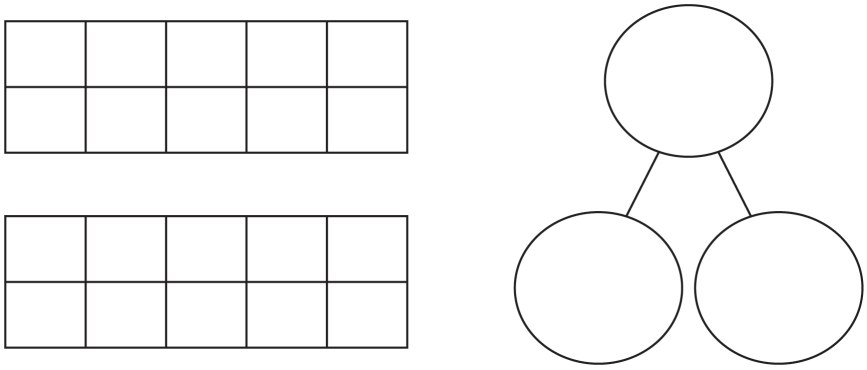


Number sentence: _____

Name _____ Date _____

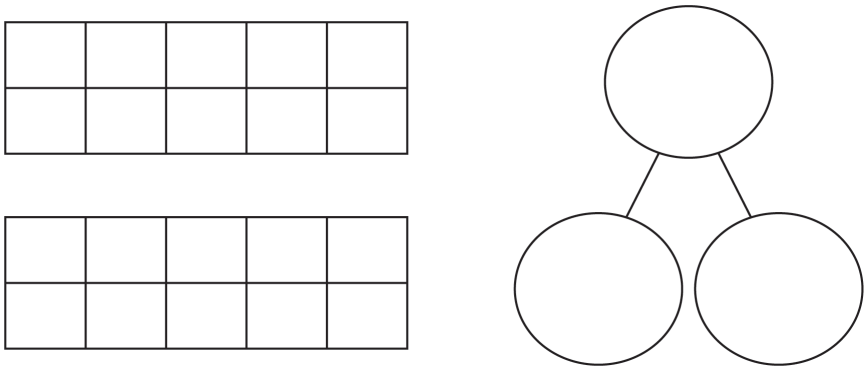
Draw pictures on the ten-frames or number bond to solve each problem.
Then write a number sentence to match your work.

1. Jackie wins 13 stuffed animals at the carnival. 5 are big, and the rest are small. How many small stuffed animals does Jackie win at the carnival?



Number sentence: _____

2. Oscar buys 11 ride tickets and uses 6 of them. How many ride tickets does Oscar have now?



Number sentence: _____

1	2
3	4
5	6
7	8
9	10

numeral cards

Application Problem

5 orange butterflies
9 blue butterflies
Answers will vary, but may include using a related problem.

Problem Set

Number sentences may be recorded in a variety of ways, including:

1.	20 − 13 = 7	7 = 20 − 13	7 tickets
2.	14 − 7 = 7	7 = 14 − 7	7 corn dogs
3.	12 − 8 = 4	4 = 12 − 8	4 seats
4.	12 − 4 = 8	8 = 12 − 4	8 plain donuts

Exit Ticket

Number sentences may be recorded in a variety of ways, including:

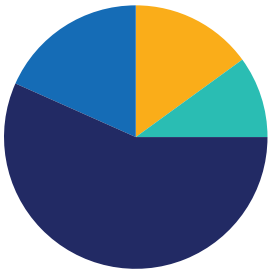
1.	13 − 5 = 8	8 = 13 − 5	8 stuffed animals
2.	11 − 6 = 5	5 = 11 − 6	5 tickets

Lesson 6

Objective: Use objects and pictures to solve problems involving separating sets within 20 and unknowns as any one of the terms in the problem.

Suggested Lesson Structure

Fluency Practice	(9 minutes)
Application Problem	(6 minutes)
Concept Development	(34 minutes)
Student Debrief	(11 minutes)
Total Time	**(60 minutes)**



Fluency Practice (9 minutes)

- Skip-Counting Squats: Forward and Back to 20 **1.5B** (3 minutes)
- Cold Call: 1 More **K.2F** (2 minutes)
- Take Out 2: Number Bonds **1.3D, 1.5F** (4 minutes)

Skip-Counting Squats: Forward and Back to 20 (3 minutes)

Note: This activity supports the connection of counting on by 2 to adding 2 and counting back by 2 to subtracting 2.

Have students count from 0 to 20 and back two times, squatting down and touching the floor on odd numbers and standing up for even numbers.

- For the first count, instruct students to whisper when they squat and talk normally when they stand.
- On the second count, encourage students to try to think of the numbers in their heads when they squat and whisper when they stand.

Cold Call: 1 More (2 minutes)

Note: This activity supports the connection of counting on 1 to adding 1.

Tell students a number will be said aloud, and instruct them to think about the number that is 1 more. Cold call one student to say the number aloud as quickly as possible.

Take Out 2: Number Bonds (4 minutes)

Materials: (S) Personal white board

Note: This activity reviews the *make ten* addition strategy when one addend is 2.

Say a number within 10. Students quickly write a number bond for the number said, using 2 as a part, and hold up their boards when finished.

Application Problem (6 minutes)

Materials: (T) Toy box (Application Template)
(S) 20 connecting cubes, personal white board

(Display the toy box template.)

D'Asia has a box of 8 toy people. She took 3 toy people out of the box to play with and left the rest of the toy people in the box. How many toy people are still in the box? On your personal white board, write a number sentence to match the problem.

Draw a box for the unknown amount.

Next, use your connecting cubes to find the missing amount. You may work with a partner.

Note: This problem was chosen to review representing separating situations within 10 in anticipation of today's lesson in which students represent situations within 20. Today's Application Problem may be used as an opportunity to review different ways to write a number sentence to match a situation (i.e., 8 − 5 = 3 and 3 = 8 − 5).

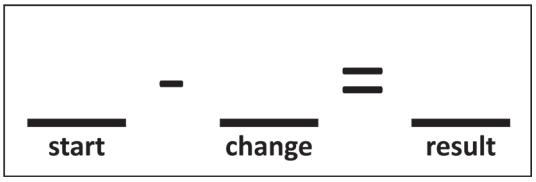
Concept Development (34 minutes)

Materials: (T) Scenes from a diner (Template 1)
(S) 20 connecting cubes, number bond mat (Template 2)

Note: The purpose of the scenes from a diner (Template 1) is to help students understand the context of each problem situation. Each image only represents part of the corresponding problem so the image will not reveal the answer to students.

Part 1: Separate Problem, Result Unknown

T: (Draw a blank subtraction number sentence on the board. Write *start*, *change*, and *result* under the lines.) Today, we will solve separating problems in which we have a group of objects, and some objects are removed from it. Sometimes we will know the starting amount. (Point to *start* on the number sentence.) Sometimes we will know the number of objects being separated from to the starting amount.



This is called the *change.* (Point to *change* on the number sentence.) Sometimes we will know the result. (Point to *result* on the number sentence.) You need to listen carefully to decide what we know and what we are trying to find.

T: (Display Scene 1.) Listen as I read this problem: 13 people were eating at the diner. 5 people left. How many people are eating in the diner now?

T: What do we know?

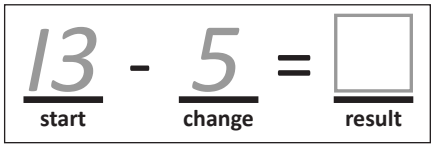
S: 13 people were eating. → 5 people left.

T: Yes! We can write a number sentence to match this. We know we're starting with the whole group of 13 people. (Write 13 on the first blank on the number sentence.) We also know 5 people left. That's the amount we are taking away, also called the *change*. (Write 5 on the second blank.)

T: What are we trying to find?

S: The number of people still at the diner.

T: Yes. We are trying to find the number of people left, or the result. I'll draw a box on the number sentence to show the amount we don't know. Use your cubes to solve. You may choose to use your number bond if you'd like.



S: (Take 5 from 13 to get the solution, 8.)

T: How did you solve this?

S: I put 13 cubes in the top circle of my number bond. Then I moved 5 cubes down to one bottom circle, and moved the leftover cubes to the other bottom circle. I counted 8 leftover cubes.

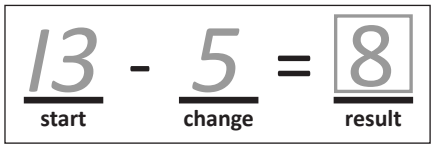
NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Choose just right numbers to provide ample opportunities for students to experience success and build confidence in their math skills.

T: Did anyone do anything different?

S: I built a tower of 13 cubes. I counted back as I took away 5 cubes, one at a time. 12, 11, 10, 9, 8.

T: Yes! There are many ways we can use objects to find the result. Now we can record 8 on our number sentence. There were 8 people left in the diner.



Part 2: Separate Problem, Change Unknown

T: (Draw another blank subtraction number sentence on the board: ___ − ___ = ___. Display Scene 2.) Let's try another problem. Again, think about what we know and what we are trying to find: The Cruz family ordered 20 pancakes. They ate some of the pancakes, and there were 8 left over. How many pancakes did the Cruz family eat?

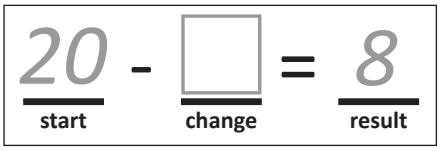
T: What do we know?

S: The family ordered 20 pancakes. → There were 8 pancakes left over.

T: What are we trying to find?

S: The number of pancakes the Cruz family ate.

T: On our number sentence, let's record what we know and what we are trying to find. The starting amount was 20 pancakes. (Record 20 on the first blank of the number sentence.) The family ate some, but we don't know how many they ate. Let's draw a box for this unknown amount. (Draw a box on the second blank.) After they finished eating, there were 8 pancakes left. We know 8 is the result. (Record 8 on the third blank.) Use your cubes to find the missing amount. You may also use your number bond if you'd like.

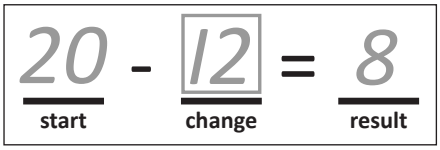


S: (Use counting, addition, or subtraction to find the missing number, 12.)

T: How did you find the missing number?

S: I started with 8 cubes and added more until I got to 20. I added 12 cubes to get to 20. → I started with 20 cubes. I took away 8 cubes for the pancakes that are left over. Then I counted the other group, 12.

T: Great! To solve this problem, you can think addition and count up to 20. Or you can think subtraction and take away the group you know in order to get the missing group, or count back from 20 to 8. I'll write 12 on our number sentence to show the missing amount. The Cruz family ate 12 pancakes.



Part 3: Separate Problem, Start Unknown

T: (Draw another blank addition number sentence on the board: ___ − ___ = ___. Display Scene 3.) Let's try another problem. Again, think about what we know and what we are trying to find: This morning, Chef Nilsson baked some chocolate cakes and put them in the dessert case to sell. 7 of the chocolate cakes sold, and 4 of the chocolate cakes were still in the case at the end of the day. How many chocolate cakes did Chef Nilsson make this morning?

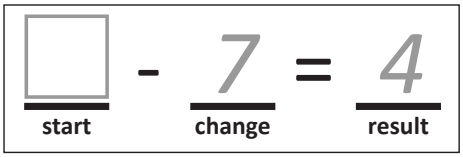
T: What do we know?

S: 7 cakes sold. → 4 cakes were left at the end of the day.

T: What are we trying to find?

S: The number of cakes Chef Nilsson baked this morning.

T: Let's record what we know on our number sentence. We don't know how many Chef Nilsson baked, so we'll draw a box for our starting amount. We do know 7 cakes sold. (Record 7 in the second blank.) We also know 4 cakes were left at the end of the day. That's our result. (Record 4 in the third blank.) This time, draw a picture on your number bond to find our missing number.

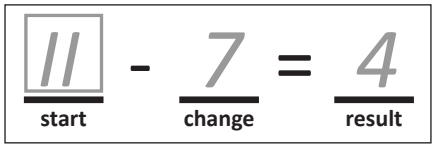


S: (Draw. Then use counting, addition, or subtraction to find the missing number, 11.)

T: How did you find the missing number?

S: In one of the bottom parts of my number bond, I drew circles for the number of cakes sold. In the other bottom part of my number bond, I drew circles for the number of cakes left over. I needed to find the total amount of cakes Chef Nilsson baked, so I counted all of the circles. That's 11.

T: Yes, when faced with a take-away problem where you don't know the starting amount, you can add the two parts to get the starting amount or total. Let's record 11 in our box to show the missing number. Chef Nilsson baked 11 chocolate cakes.



Note: Students often solve *change unknown* and *start unknown* problems using addition. For this reason, the problems in this lesson are not called *subtraction* problems. Instead, they are referred to as *separating* problems. Eliminating use of the word *subtraction* in this situation supports students in constructing their own strategies in ways that are meaningful to them by not confining them to subtraction.

Problem Set (10 minutes)

Read each problem aloud. After reading the problem, pause for students to solve. Reread as needed. Students should do their personal best to complete the Problem Set within the allocated time.

The goal of this lesson is to solve problems using objects and pictures. Students are asked to record number sentences in order to identify known and unknown information, but it is not a necessary goal of the lesson. If differentiation is needed, the number sentences may be omitted.

Student Debrief (11 minutes)

Lesson Objective: Use objects and pictures to solve problems involving separating sets within 20 and unknowns as any one of the terms in the problem.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- What did you know for Problem 1? What were you trying to find?
- Talk to a partner about how you solved Problem 2. What was the same about your work? What was different? Is there more than one way to find the answer?
- How did you use cubes to solve Problem 2? What number did you start with?
- How did you draw a picture to solve Problem 4? What number did you start with?
- What number sentence did you use to represent this problem?
- Why might it be important to read a problem more than once?
- Why might it be important to write a number sentence with a box for the unknown amount?

Exit Ticket (5 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

Name _____ Date _____

Write a number sentence to match the problem. Put a box for the unknown amount. Use connecting cubes to solve. You may use your number bond mat if you choose. Write the answer in your box.

1 This morning, Chef Nilsson baked 14 cupcakes. She sold 9 of the cupcakes and kept the rest to bring to her family. How many cupcakes did Chef Nilsson bring to her family?

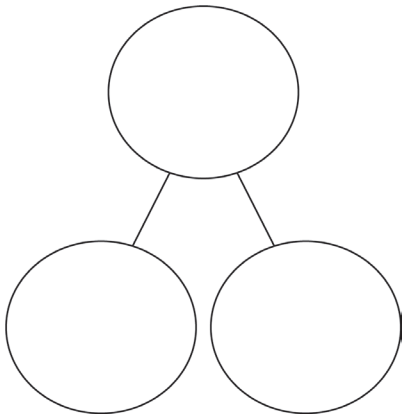
Number Sentence: _____ - _____ = _____

2. The Curtis family ordered a box of 12 donuts. They ate some of the donuts. Now there are 4 donuts left in the box. How many donuts did the Curtis family eat?

Number Sentence: _____ - _____ = _____

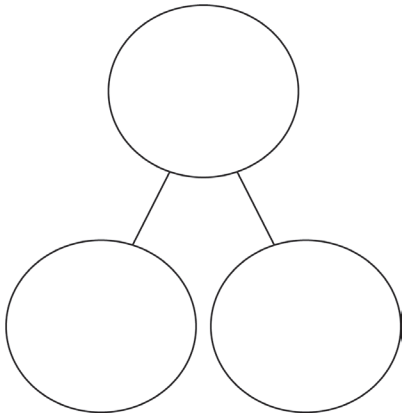
Write a number sentence to match the problem. Put a box for the unknown amount. Then draw a picture in the number bond to solve. Write the answer in your box.

3. Nadia's pizza had 14 slices of pepperoni on it. Nadia ate 7 pepperoni slices. How many slices of pepperoni are still on Nadia's pizza?



Number Sentence: _____ - _____ = _____

4. Ty's family ordered a basket of chicken wings. They ate 15 wings, and there are 5 wings left in the basket. How many wings did Ty's family order?

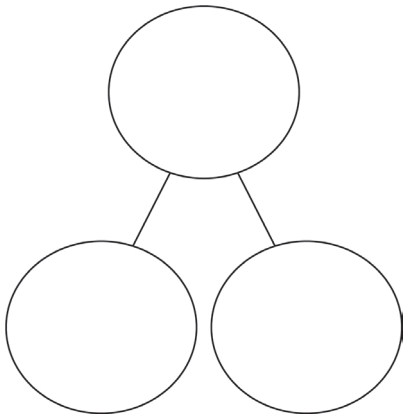


Number Sentence: _____ - _____ = _____

Name _____ Date _____

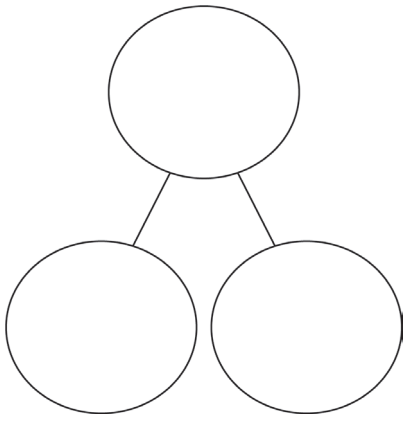
Write a number sentence to match the problem. Put a box for the unknown amount. Then use objects or draw a picture to solve. Write the answer in your box.

1. Chef Nilsson grilled 12 burgers. Customers ate 5 of the burgers. How many burgers were not eaten?

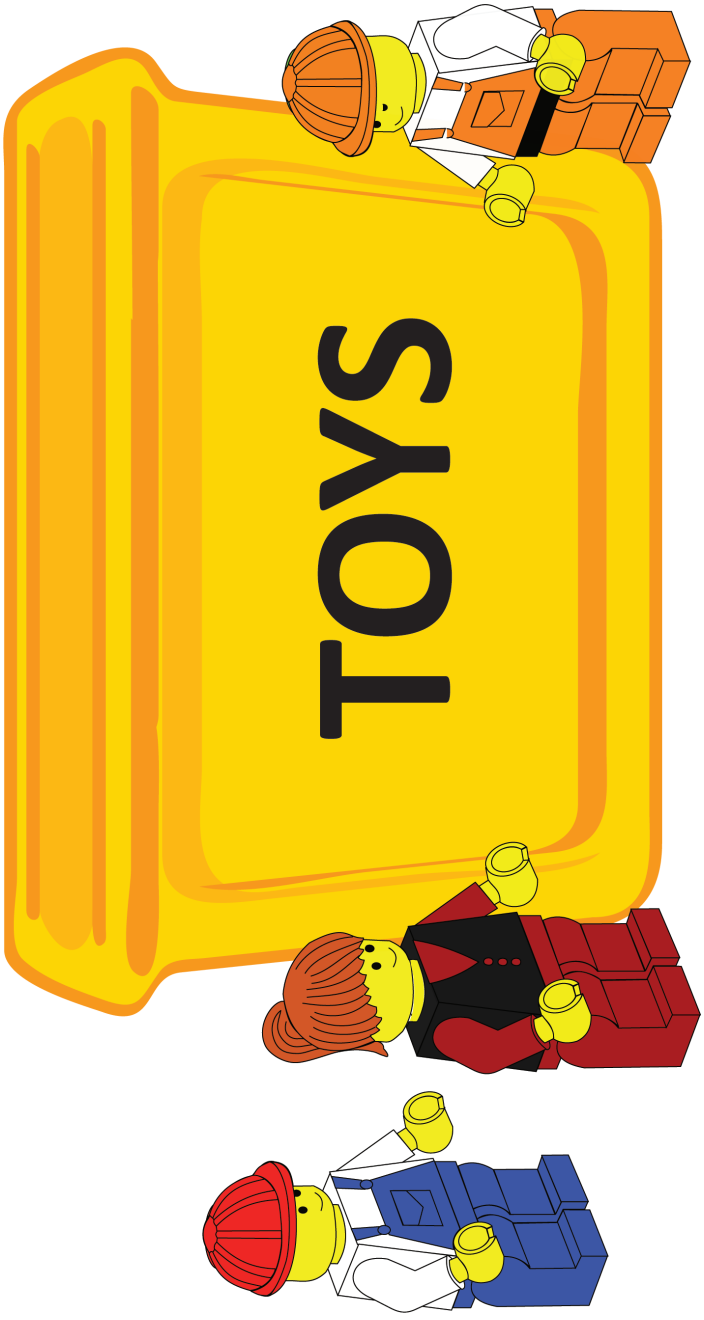


Number Sentence: _____ + _____ = _____

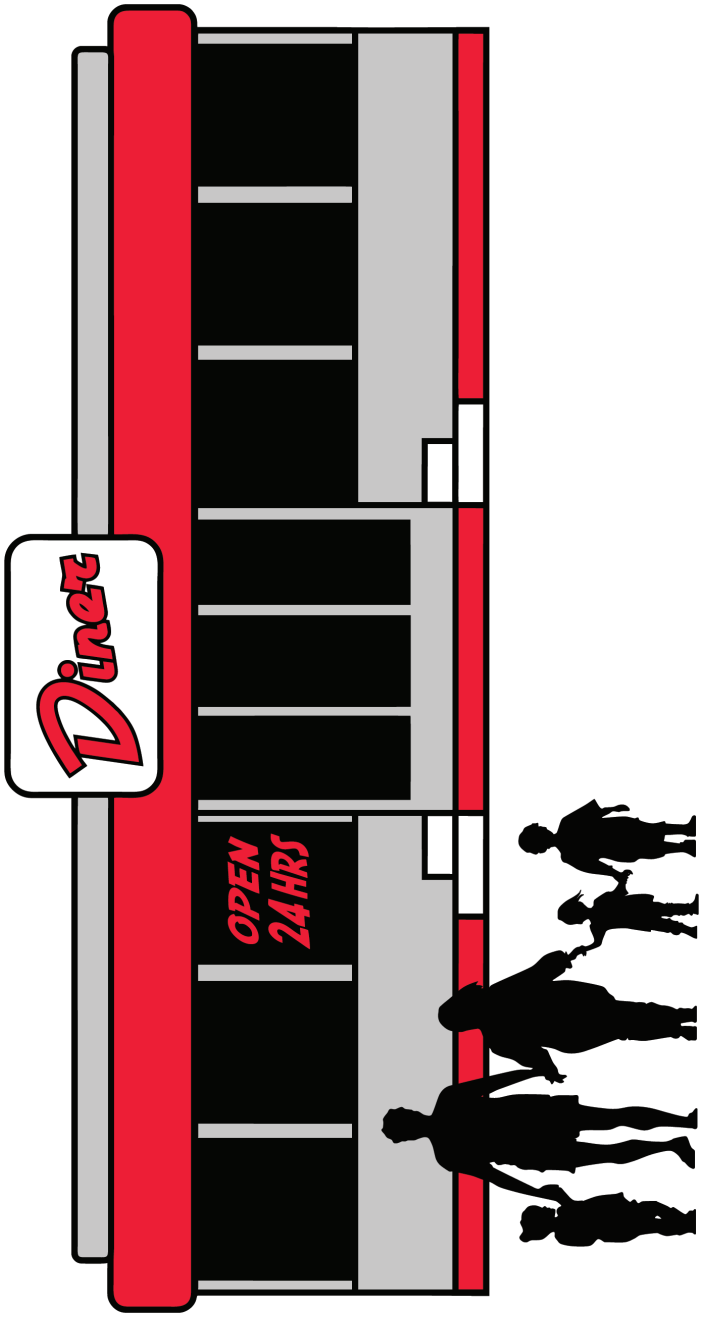
2. Max ordered some donuts. He ate 2 of the donuts and brought 9 donuts to his family. How many donuts did Max order?



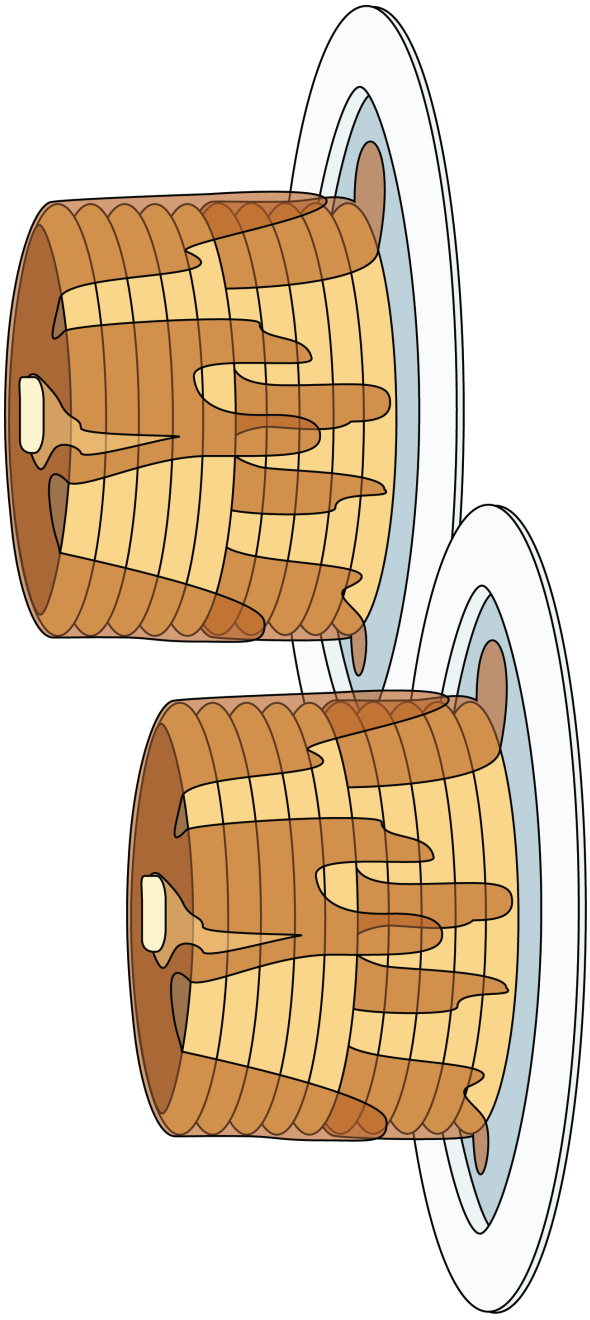
Number Sentence: _____ + _____ = _____



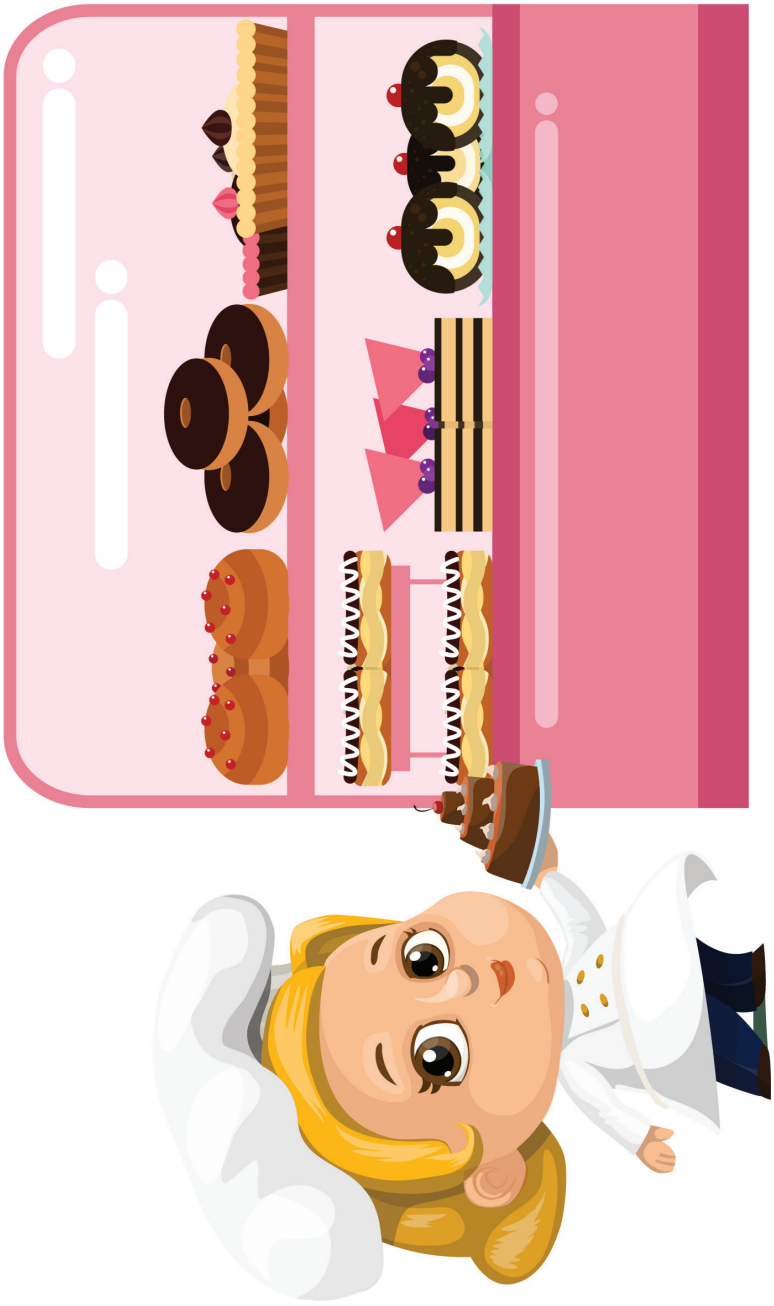
toy box



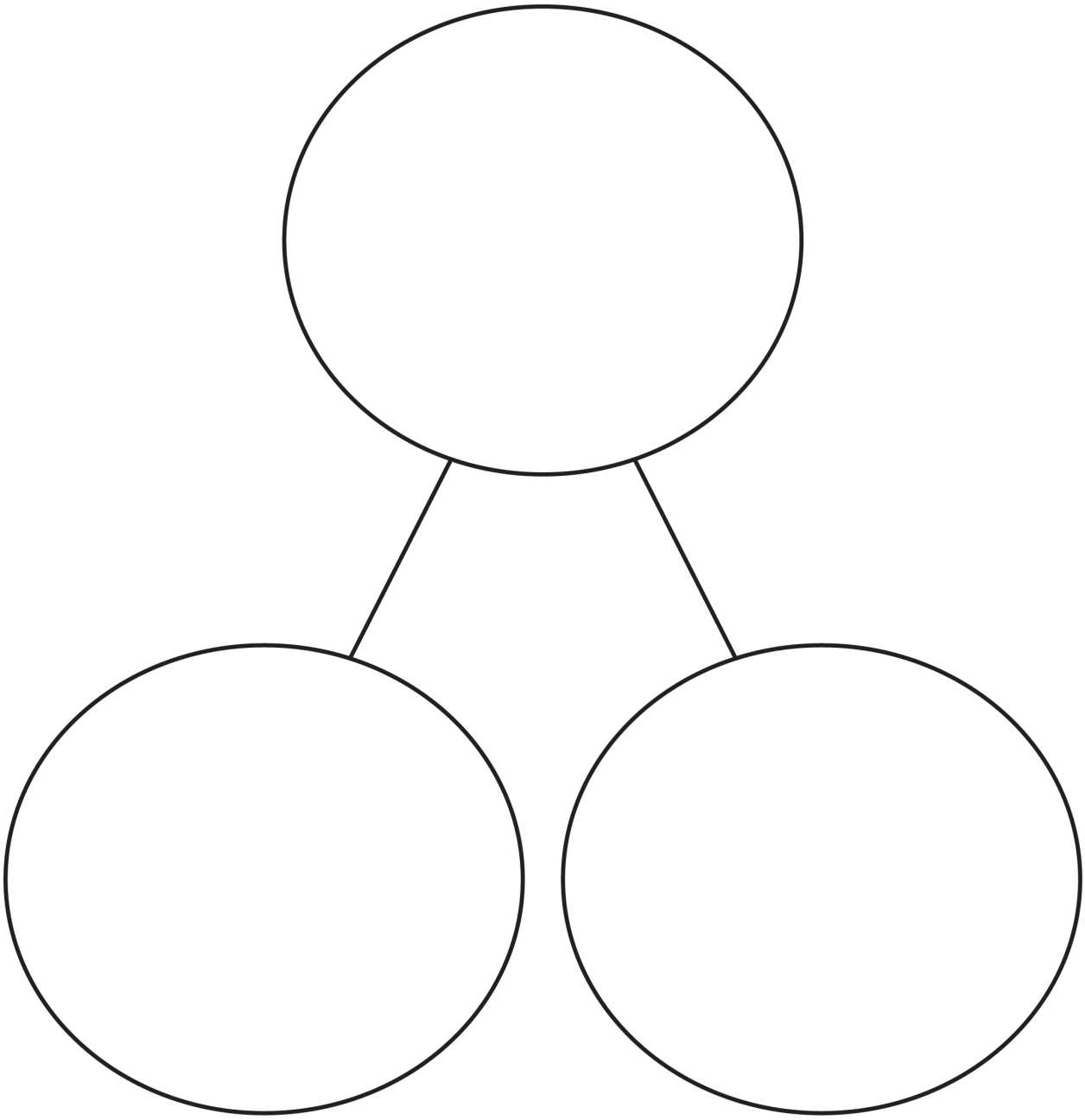
scenes from a diner (scene 1)



scenes from a diner (scene 2)



scenes from a diner (scene 3)



number bond mat

Application Problem

8 − 3 = **5**

Problem Set

1. 14 − 9 = **5** 5 cupcakes
2. 12 − **8** = 4 8 donuts
3. 14 − 7 = **7** 7 slices of pepperoni
4. **20** − 15 = 5 20 chicken wings

Exit Ticket

1. 12 − 5 = **7** 7 burgers
2. **11** − 2 = 9 11 donuts

Lesson 7

Objective: Use objects and pictures to solve problems involving comparing sets within 20 and unknowns as any one of the terms in the problem.

Suggested Lesson Structure

Fluency Practice	(13 minutes)
Application Problem	(6 minutes)
Concept Development	(30 minutes)
Student Debrief	(11 minutes)
Total Time	**(60 minutes)**

Fluency Practice (13 minutes)

- Count by Tens **1.5B** (5 minutes)
- Count On Cheers: 2 More **1.5A** (4 minutes)
- Cold Call: 2 More and 2 Less **1.5B** (4 minutes)

Count by Tens (5 minutes)

Materials: (T) Hundred chart (Fluency Template)

Note: Providing students with ongoing counting practice throughout the school year builds and maintains their counting skills. This is foundational for adding and subtracting tens.

Use the hundred chart (Fluency Template) as a visual while students count by tens, first the regular way (10, 20, 30…) and then the Say Ten way (1 ten, 2 tens, 3 tens…).

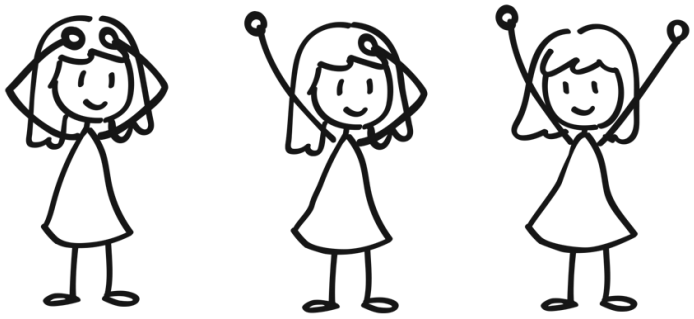
Next, point to 3 on the hundred chart. Ask students to count on by tens from 3 using the Say Ten way. Continue to use the hundred chart as a visual to support students.

Repeat, starting at various numbers between 1 and 9.

Count On Cheers: 2 More (4 minutes)

Note: This activity reviews counting on by 2 to connect to adding 2.

The teacher says a number aloud. Students repeat the number, touching their heads and counting on as they put their fists in the air, one at a time. Alternatively, students can count on with boxing punches.



Seven! *Eight!* *Nine!*

Repeat the activity by having students count on from different numbers within 10.

Cold Call: 2 More and 2 Less (4 minutes)

Note: This activity builds fluency adding and subtracting within 10.

Say a number aloud and instruct students to think about the number that is 2 more. Let them know the teacher will cold call students to say the number as quickly as possible. Alternate between calling on individual students, the whole class, and groups of students (e.g., students in the first row, second table, etc.).

Play again, cold calling students to say the number that is 2 less.

Application Problem (6 minutes)

Materials: (S) 20 connecting cubes, personal white board

Veronika is 8 years old. Her sister is 4 years old. How much older is Veronika than her sister? Use connecting cubes or drawing to show and compare the girls' ages.

Note: This problem was chosen to review comparison situations within 10 in anticipation of today's lesson in which students represent comparison situations within 20.

Concept Development (30 minutes)

Materials: (T) Comparing names (Template 1), comparing ladybugs (Template 2)
(S) 20 connecting cubes, personal white board

Note: Prior to the lesson, distribute 20 connecting cubes and a personal white board to each student.

Part 1: How Many More?

T: Two friends, Chris and Ana, are talking about their names. They say they both use nicknames because their full names are so long. Chris and Ana decide to compare the number of letters in their full

names: Christopher and Anastasia. (Display the Comparing Names template.) Look at their names. How might you compare the two names? Discuss with a partner.

S: (Discuss with a partner.)

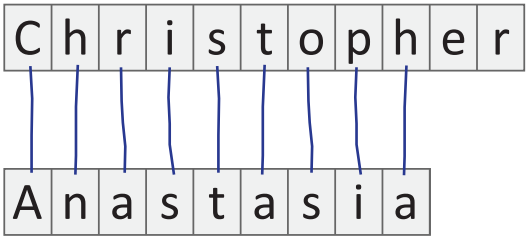
T: What is one thing you or your partner said?

S: Christopher has more letters. → Anastasia has fewer letters.

T: Christopher does have more letters. How many more letters does his name have than Anastasia's name? How can we find our answer?

S: He has 2 more letters. We can draw lines to match their letters. Then we can see how many more letters Anastasia needs to catch up to Christopher.

T: (Model drawing lines to match letters in the names.) How many more letters does Anastasia need to catch up to Christopher?



S: 2.

T: Is there another way we could find how many more letters Christopher has than Anastasia?

S: We could use connecting cubes. Build a train of cubes to match the number of letters in Christopher's name and another train of cubes to match the number of letters in Anastasia's name. Then take away the number of cubes they both have and see how many leftover cubes the longer name has.

T: That strategy is similar to subtraction. If you take away the part they both have (9), you'll have the leftover letters. Whenever you want to know *how many more*, you can to find the number of leftovers the larger set has, or how many more the smaller set needs to *catch up*. This means you are finding the difference between the two sets. For this problem, the difference is 2. Chris has 2 more letters in his full name than Ana has in her full name. Ana has 2 fewer letters in her full name than Chris has in his full name.

Part 2: How Many Fewer?

T: Ana's grandma takes Ana and Chris to a park. At the park, Chris picks 12 flowers, and Ana picks 8 flowers. Represent their flowers using connecting cubes.

S: (Build a tower of 12 and a tower of 8, or draw a set of 12 and a set of 8.)

T: Now compare their sets of flowers. How many fewer flowers does Ana have than Chris? How did you find the solution?

NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Challenge students who finish early to try drawing a different way to show their answer or to create their own related problem.

S: I made a tower of 12 and a tower of 8. I matched the towers side by side. I saw Chris has 4 extra cubes. That means Ana has 4 fewer flowers.

T: Did anyone do something different?

S: I took away the amount they both had, 8. Chris has 4 left over, and Ana has nothing left over. Ana has 4 fewer flowers.

T: Did anyone do something different?

S: I subtracted. I took 8 from 12 because they both had 8. Ana has 4 fewer flowers.

T: If you take away the part they both have (8), you'll see Ana has 4 fewer flowers than Chris. This is the difference between their sets of flowers. You can also find how many more flowers Ana needs to pick to have the same amount as Chris. For this problem, the difference between the two sets is 4. Chris has 4 more flowers than Ana; Ana has 4 fewer flowers than Chris.

Part 3: What's the Unknown Quantity?

T: (Display Comparing Ladybugs (Template 2).) At the park, Ana sees 13 ladybugs on a tree. On your personal white board, draw the ladybugs Ana sees. It may be helpful to draw them in a straight row.

S: (Draw a row of 13 ladybugs.)

T: Chris sees 5 more ladybugs than Ana. Draw the ladybugs Chris sees.

S: (Draw a row of 18 ladybugs.)

T: How did you know the number of ladybugs to draw for Chris?

S: I added 13 plus 5. → I drew 13 ladybugs to match Ana's amount. Then I drew 5 more.

T: Yes. When you know how many are in the set with fewer items and you know the difference between the two sets, you can add to get the number of items in the set with more items.

T: Ana's grandma sees 4 fewer ladybugs than Ana. Draw the ladybugs her grandma sees.

S: (Draw a row of 9 ladybugs.)

T: How did you know the number of ladybugs to draw for Ana's grandma?

S: I subtracted 4 from 13. → I drew 13 ladybugs to match Ana's amount. Then I crossed out 4.

T: Yes. When you know the number of items in the set with more and you know the difference between the two sets, you can subtract to get the number of items in the set with fewer items. Whenever you are solving problems involving comparisons, you must think about what you know and what you are trying to find. Using objects or drawings to show the amounts in the problem helps you clearly see what you know and what you are finding.

Problem Set (10 minutes)

Read each problem aloud. After reading the problem, pause for students to solve. Reread as needed. Students should do their personal best to complete the Problem Set within the allotted time.

Student Debrief (11 minutes)

Lesson Objective: Use objects and pictures to solve problems involving comparing sets within 20 and unknowns as any one of the terms in the problem.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- What does it mean to compare two sets? What are some words we might use to describe the comparisons? (more, fewer, equal)
- Look at Problem __. What do we know? What are we trying to find?
- Talk to your partner about how you solved Problem __. What was the same about your work? What was different?
- What is a problem asking you to do when it says *how many fewer*?
- How can you use drawings or objects to compare two sets?
- Why is it helpful to draw your items in straight rows when making a comparison?
- When is it helpful to use addition to compare sets?
- When is it helpful to use subtraction to compare sets?

Exit Ticket (5 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

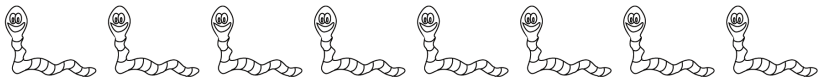
Name _____ Date _____

Use the pictures to solve each question.

1. Ana puts 11 worms in a jar. Chris puts 8 worms in a jar. How many more worms does Ana have than Chris?

Ana's worms:

Chris' worms:



Ana has ____ more worms than Chris.

2. Ana sees 9 snails on a tree. Chris sees 5 more snails than Ana. How many snails does Chris see?

Ana's snails:

Chris sees _____ snails.

Use connecting cubes to solve.

3. Ana is standing next to a pine tree that is 17 feet tall. Ana is 12 feet shorter than the pine tree. How tall is Ana?

Ana is _____ feet tall.

Draw pictures to solve.

4. Chris picks 14 berries from a berry bush. Ana picks 6 fewer berries than Chris. How many berries does Ana pick?

Ana picks _____ berries.

Name _____ Date _____

Use connecting cubes to solve. Draw pictures to match your work.

1. There are 13 blue birds and 16 red birds in a tree. How many fewer blue birds are there than red birds?

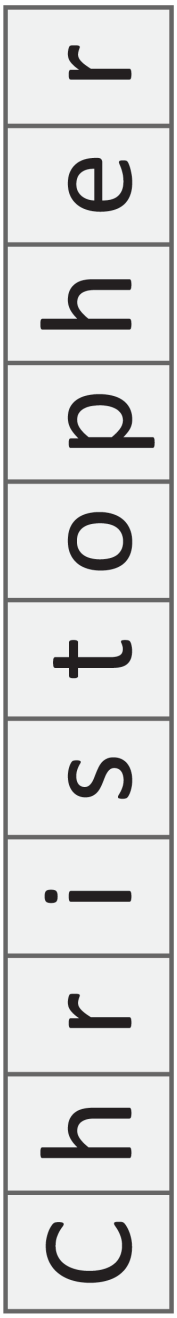
There are _____ fewer blue birds than red birds.

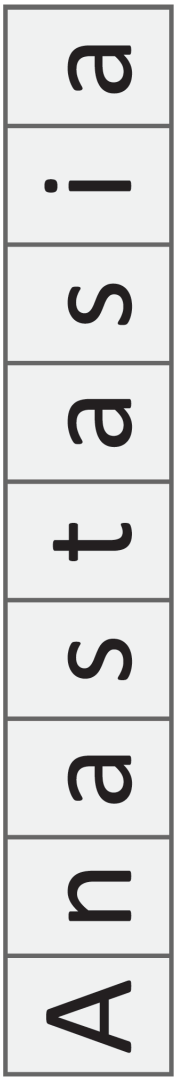
2. Ana swims in the pond for 12 minutes. Chris swims 8 minutes longer than Ana. How many minutes does Chris swim?

Chris swims for _____ minutes.

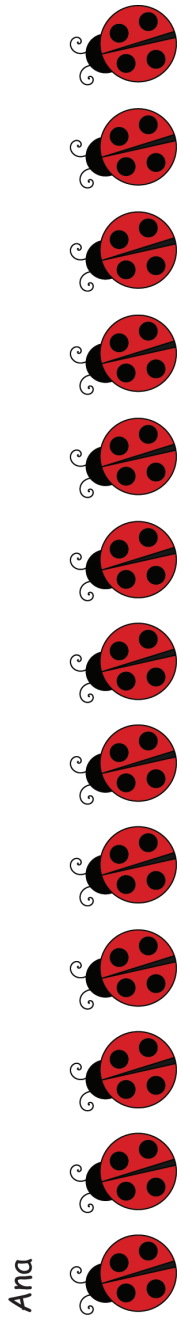
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

hundred chart





comparing names



comparing ladybugs

Application Problem

4 years older

Problem Set

1. 3
2. 14
3. 5
4. 8

Exit Ticket

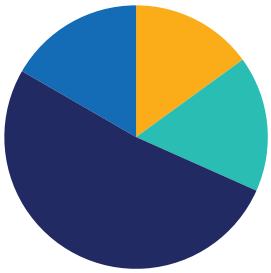
1. 3
2. 20

Lesson 8

Objective: Use objects and pictures to solve problems involving joining, separating, and comparing sets within 20 and unknowns as any one of the terms in the problem.

Suggested Lesson Structure

Fluency Practice	(9 minutes)
Application Problem	(10 minutes)
Concept Development	(31 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



Fluency Practice (9 minutes)

- Red Light/Green Light: Counting by Tens **1.5B** (5 minutes)
- Decompose Addition Sentences into Three Parts **1.3C, 1.3D, 1.5G** (4 minutes)

Red Light/Green Light: Counting by Tens (5 minutes)

Note: Providing ongoing practice with counting throughout the school year builds and maintains students' counting skills.

Begin with 0 and say "green light." Students begin running in place and counting aloud together by tens until they reach 100. Say "red light." Students stop counting and freeze. Students who are still moving or counting after "red light" sit down until the next game. Once students reach 100, continue to play, counting back by tens until students arrive at 0. The last student (or few students) standing wins.

For the first game, start at 0. Then try playing the game again beginning with 4 and then with 8.

Decompose Addition Sentences into Three Parts (4 minutes)

Note: This fluency activity reviews adding three numbers and making ten when one addend is 9.

T: (Write 9 + 3.) Say 3 as an addition sentence starting with 1.

S: 1 + 2.

T: (Write 1 + 2 below 3.) Say 9 + 3 as a three-part addition sentence.

S: 9 + 1 + 2 = 12.

Write out the equation for students to see if necessary. Repeat the process for other problems.

Application Problem (10 minutes)

Materials: (S) Personal white board

Note: The goal of this Application Problem is to review the parts of join and separate problems (start, change, and result). This is a review of Lessons 3 and 7. Read each problem, pausing for students to solve using drawings on their personal white boards.

A monkey eats 5 grapes at breakfast. Then it eats 4 grapes at lunch. How many grapes does the monkey eat altogether?

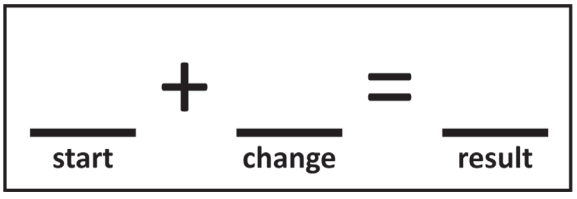
Extension:

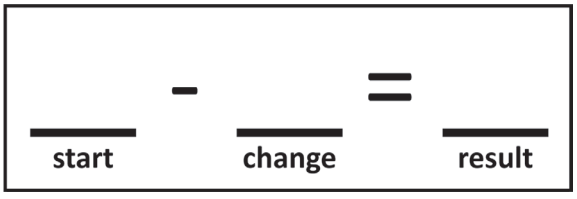
- Another monkey eats some grapes at breakfast. Then it eats 4 grapes at lunch. It eats 9 grapes in all. How many grapes does the monkey eat at breakfast?
- A third monkey eats 5 grapes at breakfast. Then it eats some more grapes at lunch. It eats 9 grapes in all. How many grapes does the monkey eat at lunch?
- How are these problems the same? How are they different? (They are all join problems using the same numbers. In the first problem, we do not know the result. In the second problem, we do not know the starting amount. In the last problem, we do not know the change.)

Concept Development (31 minutes)

Materials: (T) 20 cubes
(S) 20 cubes, personal white board

Note: This lesson serves as a review of three problem types: join, separate, and compare. As students review join and separate problems, it is important to state that these problems involve a starting amount, change, and result. While the teacher records number sentences to match today's join and separate problems, it may be helpful to write *start*, *change*, and *result* below the number sentences.





Compare problems do not involve a start, change, or result. Instead, they compare two distinct amounts. For these problems, it will be helpful for the teacher to incorporate the language *amount with more, amount with fewer*, and *difference*.

T: We have been learning to solve three problem types: join problems, separate problems, and compare problems. Today, we will review them. I will read a problem aloud. First, you will think about what

you know and what you are trying to find. Next, you will identify the problem type. Finally, you will solve the problem with objects or drawings.

Part 1: Join Problems

T: The local zoo has 7 monkeys. Next week they will get some new monkeys. Then they will have 14 monkeys. How many new monkeys will the zoo get next week?

T: Talk to your partner about what we know from listening to this problem.

S: The zoo has 7 monkeys. After they get their new monkeys, they will have 14 in all.

T: Now talk to your partner about what we are trying to find.

S: We need to find the number of new monkeys the zoo will get next week.

T: Does this problem join groups of monkeys, separate a group of monkeys, or compare groups of monkeys?

S: Join. It joins the monkeys already at the zoo and new monkeys.

T: Yes. We are starting with 7 monkeys and joining some new monkeys to the group. The result will be a total of 14 monkeys. (Model writing the number sentence 7 + ___ = 14.) Now use connecting cubes or drawings to find the number of new monkeys.

S: (Use cubes or drawings to find the solution, 7.)

T: How did you find the number of new monkeys the zoo will receive?

S: I started by drawing 7 circles. Then I added more circles until I got to 14. I added 7 circles to get to 14.

T: (Model this student's strategy for the class to see.) You counted on to 14 to find the missing amount. That's an addition strategy. Did anyone do something different?

S: I built a tower of 14 cubes. I took away 7 for the monkeys the zoo already has. Then I counted the leftover cubes and found the zoo will get 7 new monkeys.

T: (Model this student's strategy for the class to see.) You took away the part you knew to find the missing part. Then you counted the missing part. This is a subtraction strategy.

T: Now let's change our problem a bit: The local zoo has 7 monkeys. Next week they will get 7 new monkeys. How many total monkeys will they have next week? What do we know this time?

S: The zoo has 7 monkeys, and they are getting 7 new monkeys.

T: What are we finding?

S: The total number of monkeys they will have.

T: Yes. They are starting with 7 monkeys, and 7 new monkeys are being joined to the original group. We need to find the result. Talk to your partner about how you might solve this new problem.

NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Adjust the lesson structure based on the needs of students. Some students may be ready for challenging problems, while others may need to focus on one problem type only (e.g., join problems). Provide challenging problems for students who are ready, while spending time with students who may need more support representing one problem type. For those who need additional support, use concrete objects or drawings to directly model the problem situation.

S: Add. → Put the two groups together and count them. → Count on. → Use a known fact (7 + 7).

T: (Ask 2–3 students to model their strategies for the whole class.) This time, we used counting or addition to solve the problem. The way you solve a join problem depends on what you know and what you are trying to find. Start by representing the problem with cubes or drawings. Then decide if you will use counting, addition, subtraction, or a known math fact to solve the problem.

Part 2: Separate Problems

T: The zookeeper threw some fish into the water for the seal. The seal ate 6 of the fish, and 5 fish were left over. How many fish did the zookeeper throw into the water?

T: Talk to your partner about what we know from listening to this problem.

S: The seal ate 6 fish, and there were 5 fish left over.

T: Now talk to your partners about what we are trying to find.

S: We need to find the number of fish the zookeeper threw into the water.

T: Does this problem join groups of fish, separate a group of fish, or compare two groups of fish?

S: Separate. It separates a group of fish into the part the seal ate and the leftover part.

T: Yes, this is a separate problem. We don't know how many fish we started with. We do know the seal ate 6 fish, and the result was 5 leftover fish. (Model writing the number sentence ___ − 6 = 5.) Use connecting cubes or drawings to find the number of fish we started with.

S: (Use cubes or drawings to find the solution, 11.)

Call on 2–3 students to share their strategies. Highlight strategies that focus on adding the change (6) and result (5) to get the starting amount (11). If a student used a known fact (5 + 6 = 11), this should also be highlighted.

T: The way you solve a separate problem depends on what you know and what you are trying to find. Start by representing the problem with cubes or drawings. Then decide if you will use counting, an addition strategy, a subtraction strategy, or a known math fact to solve the problem.

Part 3: Compare Problems

T: An elephant at the local zoo is 13 feet tall. A gorilla at the zoo is 5 feet tall. How many feet taller is the elephant than the gorilla?

T: Talk to your partner about what we know from listening to this problem.

S: The elephant is 13 feet tall. The gorilla is 5 feet tall.

T: Now talk to your partner about what we are trying to find.

S: We are trying to find how many feet taller the elephant is than the gorilla.

T: Does this problem join groups of animals, separate a group of animals, or compare animals?

S: Compare. It's comparing the elephant's height to the gorilla's height.

T: Yes, this is a compare problem. We know the animals' heights, but we don't know the difference between their heights. In other words, we don't know how much taller the elephant is than the

gorilla. Use connecting cubes or drawings to find how many feet taller the elephant is than the gorilla.

S: (Use cubes or drawings to find the solution, 8.)

T: (Call on 2–3 students to share their strategies. Highlight strategies that include direct modeling and counting.)

T: The way you solve a comparison problem depends on what you know and what you are trying to find. For this problem, we knew the elephant's height and the gorilla's height. We just didn't know the difference between the two. To solve this problem, we can represent it with cubes or drawings. Then we can count on from 5 or use matching.

Continue to model solving additional problems as time allows. If needed, guide students through the process of modeling a problem with cubes or drawings.

Problem Set (10 minutes)

Read each problem aloud. After reading the problem, pause for students to solve. Reread as needed. Students should do their personal best to complete the Problem Set within the allotted time.

Student Debrief (10 minutes)

Lesson Objective: Use objects and pictures to solve problems involving joining, separating, and comparing sets within 20 and unknowns as any one of the terms in the problem.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- Talk to a partner about how you solved Problem 1. What was the same about your work? What was different? Is there more than one way to find the answer?
- What problem type is Problem 2? How do you know?
- What problem type is Problem 3? (compare) What were you comparing?
- How did you solve Problem 4? What number did you start with?
- Why might it be important to read a problem more than once?
- Why should you identify the problem type you are solving (join, separate, compare)?

Exit Ticket (5 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

Name _____ Date _____

Read each problem. Circle the problem type.
Then use connecting cubes or drawings to solve.

1. The gorilla loves to eat berries! At lunch, it ate some strawberries. At dinner, it ate 8 blackberries. It ate 19 berries in all. How many strawberries did the gorilla eat?

Problem Type: join separate compare

The gorilla ate _____ strawberries.

2. 16 people were watching the African lion. The lion roared so loudly that it scared away some people. Now 7 people are watching. How many people did the lion scare away?

Problem Type: join separate compare

The lion scared away _____ people.

3. There are 8 lizards and 13 snakes in the reptile building. How many more snakes are there than lizards?

Problem Type: join separate compare

There are _____ more snakes than lizards.

4. 6 penguins were in the water. After breakfast, some more penguins got in the water. Now there are 14 penguins in the water. How many penguins got in the water after breakfast?

Problem Type: join separate compare

_____ penguins got in the water after breakfast.

Name _____ Date _____

Read each problem. Circle the problem type.
Then use connecting cubes or drawings to solve.

1. The zookeeper fed the elephant 9 peanuts. Then a child fed it some more peanuts. If the elephant ate 14 peanuts in all, how many peanuts did the child feed it?

Problem Type: join separate compare

The child fed the elephant _____ peanuts.

2. The mother giraffe is 15 feet tall. The baby giraffe is 6 feet shorter. How tall is the baby giraffe?

Problem Type: join separate compare

The baby giraffe is _____ feet tall.

Application Problem

9 grapes
5 grapes
4 grapes
Answers will vary, but may include that They are all join problems using the same numbers. In the first problem, we do not know the result. In the second problem, we do not know the starting amount. In the last problem, we do not know the change.

Problem Set

1. Join; 11
2. Separate; 9
3. Compare; 5
4. Join; 8

Exit Ticket

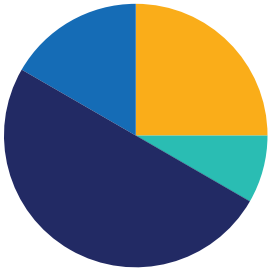
1. Join; 5
2. Compare; 9

Lesson 9

Objective: Generate and solve problem situations when given an addition or subtraction number sentence within 20.

Suggested Lesson Structure

Fluency Practice	(15 minutes)
Application Problem	(5 minutes)
Concept Development	(30 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



Fluency Practice (15 minutes)

- Ten and Tuck **1.3C** (5 minutes)
- Memory: Partners to 10 **1.3C** (7 minutes)
- 5-Group Addition **K.2D, K.2I** (3 minutes)

Ten and Tuck (5 minutes)

Note: This activity builds fluency adding and subtracting within 10. (Adjust activity as needed to meet varying physical student needs.)

Tell students to show 10 fingers. Instruct them to tuck 2 on their right hands. Ask them how many fingers are up (8) and how many are tucked (2). Then ask them to say the number sentence aloud, beginning with the larger part (8 + 2 = 10), beginning with the smaller part (2 + 8 = 10), and beginning with the whole (10 = 2 + 8 or 10 = 8 + 2).

Repeat activity by having students tuck 4 fingers.

Memory: Partners to 10 (7 minutes)

Materials: (S) Per group: 1 set of 5-group cards (Lesson 4 Fluency Template), 1 set of numeral cards (Lesson 5 Fluency Template)

Note: This activity builds fluency adding and subtracting within 10.

Give Partner A a set of shuffled 5-group cards and Partner B a set of shuffled numeral cards. Tell students to sit facing each other and line up their cards in front of them, face down. Instruct students to take turns flipping over one of their cards and one of their partner's cards to try to make a ten. When they make a ten, they place

the cards in a separate pile and keep them until the end of the game. The player with the most cards at the end of the game wins.

5-Group Addition (3 minutes)

Materials: (T) Large 5-group cards 1–5 only (Lesson 2 Fluency Template 1)

Note: This activity reviews the commutative property and adding and subtracting within 10.

The teacher holds up a 5-group card and asks students to identify the quantity. The teacher holds up a second 5-group card and asks students to identify that quantity. The teacher holds the cards side by side and asks students a series of addition questions: What is the total? What is the number sentence, starting with the bigger part? What is the number sentence, starting with the smaller part? Continue the activity with various number combinations.

Application Problem (5 minutes)

Materials: (S) Personal white board

Note: Today's Application Problem asks students to generate and solve problems to match a given number sentence within 10. This prepares students for today's lesson in which students generate and solve problems to match given number sentences within 20.

Display the number sentence ___ = 6 + 2. Ask partners to work together to create a story problem to match this number sentence. Partners record the problem on one of their personal white boards. Then partners work together to solve their problem using their other personal white board.

Extension: Have several pairs of students share their problems, ensuring the problems match the number sentence. Remind students that ___ = 6 + 2 can also be written as 6 + 2 = ___. The equal sign means the amounts on either side of it are balanced (the same amount).

Concept Development (30 minutes)

Materials: (T) Number sentence (Template 1), number sentence (Template 2)
(S) Bag of 20 connecting cubes, personal white boards

Note: Lessons 9–10 ask students to generate and solve problems when given a number sentence. Lesson 9 focuses on join and separate problems with an unknown result. Lesson 10 focuses on join and separate problems with an unknown start or change.

Prior to the lesson, distribute bags of connecting cubes and personal white boards. Students will carry these materials with them throughout the lesson.

Part 1: Separate Problems

T: Over the past several lessons, we talked about different problem types. What problem types have we discussed?

S: Join. → Separate. → Compare.

T: Today we will continue working with join and separate problems. Stand up and walk around the room. When I tell you to stop, find a partner and sit on the floor with them. When everyone is sitting, I'll give you the next step of the directions.

S: (Walk around the room.)

T: Stop!

S: (Find a partner and sit on the floor with them.)

T: With your partner, you will create a separate problem. It might be about animals, school, people at a park, or any other topic you choose.

S: (Work with a partner to create a separate problem.)

T: (Have several partners share their problems with the class. Ask the class to confirm whether or not each situation represents a separate problem. Ask follow-up questions.) How do you know this is a separate problem? What parts of your problem do you know: the start, change, or result? What are you trying to find: the start, change, or result?

NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

In some instances, the teacher may want to intentionally select pairs for collaborative work in order to achieve expected outcomes. Some lessons lend themselves to groupings of students with similar skill sets, while others work better when students are heterogeneously grouped.

T: Now you and your partner have another challenge. I will display a number sentence. This time, you and your partner will create a separate problem to match this number sentence. (Display number sentence (Template 1).) After creating the problem, take turns repeating it to each other. Then write the problem on one of your personal white boards.

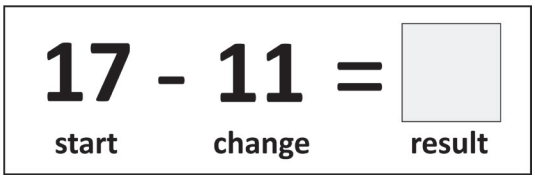
S: (Create a separate problem to match 17 − 11 = ___.)

T: (If students need support to generate a problem to match the number sentence, provide support by recording *start*, *change*, and *result* below the number sentence.)

T: Now work together to solve your problem. Use connecting cubes or draw pictures.

S: (Solve and get the solution 6.)

T: (Have several pairs of students share their problems and solutions. After each pair shares, ask follow-up questions.) What do we know from listening to this problem? What are we trying to find? How do we know this is a separate problem? What is being separated? Do the numbers in their problem match the numbers in our number sentence?



If time allows, have partners create another separate situation to match the number sentence. This is especially helpful for students who needed support creating the initial problem to match the number sentence. These students may benefit from seeing others' examples.

Part 2: Join Problems

T: Stand up and walk around the room once again. When I tell you to stop, find a new partner and sit on the floor with them. When everyone is sitting, I'll give you the next step of the directions.

S: (Walk around the room.)

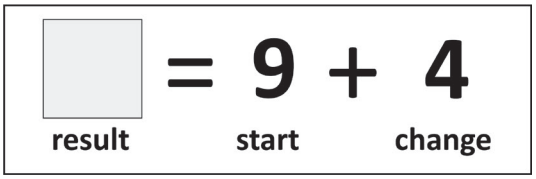
T: Stop!

S: (Find a new partner and sit on the floor with them.)

T: I am going to show you a different number sentence. This time, you and your partner will create a problem to match this number sentence. (Display number sentence (Template 2).) After creating the problem, take turns repeating it to each other. Then write the problem on one of your personal white boards.

S: (Create a problem to match ___= 9 + 4.)

T: (If students need support to generate a problem to match the number sentence, provide support by recording *result*, *start*, and *change* below the number sentence.)



T: What type of problem did you and your partner create: join or separate?

S: Join.

T: Why did you decide to make a join problem?

S: The *+ 4* tells us 4 is being joined to 9.

T: Yes! Now work together to solve your problem. Use connecting cubes or draw pictures.

S: (Solve and get the solution 13.)

T: (Have several pairs of students share their problems and solutions. After each pair shares, ask follow-up questions.) What do we know from listening to this problem? What are we trying to find? How do we know this is a join problem? What is being joined? Do the numbers in their problem match the numbers in our number sentence?

If time allows, have partners create another join situation to match the number sentence. This is especially helpful for students who needed support creating the initial problem to match the number sentence. These students may benefit from seeing others' examples.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted time.

Student Debrief (10 minutes)

Lesson Objective: Generate and solve problem situations when given an addition or subtraction number sentence within 20.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- Look at Problem 1. Compare your problem to your partner's problem. What is the same about both problems? What is different?
- Look at Problem 2. Did you create a join or separate problem to match this number sentence? Why?
- How do you know your problem matches this number sentence?
- How did you solve your problem? How do you know your solution is correct?
- Is there a different number sentence that might match the problem you created?

Exit Ticket (5 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

Name _____ Date _____

Create a problem to match each number sentence.
Solve your problem using connecting cubes or drawings.
Write your answer in the box.

1. $8 + 7 = \square$

Problem: _____

_____

_____

_____

2.

Problem: _____

_____

_____

_____

Name _____ Date _____

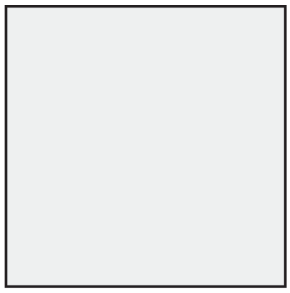
Create a problem to match the number sentence.
Solve your problem using connecting cubes or drawings.
Write your answer in the box.

Problem: _____

_____

_____

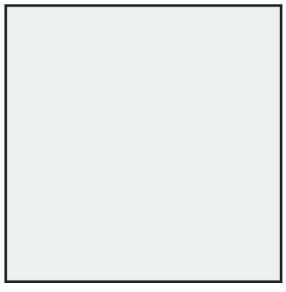
_____



17 - 11 = ☐

number sentence

$$4 + 9 = 11$$



number sentence

Application Problem

Stories will vary, but should match ___ = 6 + 2 or 6 + 2 = ___.

Problem Set

1. 15 (Problems will vary. They should involve a join situation in which 8 is the starting amount and 7 is the change. The result should be the unknown amount.)
2. 7 (Problems will vary. They should involve a separate situation in which 11 is the starting amount and 4 is the change. The result should be the unknown amount.)

Exit Ticket

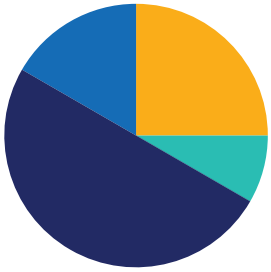
13 (Problems will vary. They should involve a separate situation in which 18 is the starting amount and 5 is the change. The result should be the unknown amount.)

Lesson 10

Objective: Generate and solve problem situations when given an addition or subtraction number sentence within 20.

Suggested Lesson Structure

Fluency Practice	(15 minutes)
Application Problem	(5 minutes)
Concept Development	(30 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



Fluency Practice (15 minutes)

- Sparkle: Count by Tens, Starting at 5 **1.5B** (5 minutes)
- Add to 9 **1.3C, 1.3D, 1.5E, 1.5F, 1.5G** (5 minutes)
- Friendly Fact Go Around: Make It Equal **1.3D, 1.5G** (5 minutes)

Sparkle: Count by Tens, Starting at 5 (5 minutes)

Note: Providing students with counting practice throughout the year builds and maintains their counting skills. This is foundational for first grade work with adding and subtracting tens.

Have the class stand in a circle.

T: Today we will count by tens around the circle, starting at 5 and ending at 95. Each student will say a number as we go around. After 95 is said, the next person will say "sparkle" and sit down. First, let's practice counting as a class.

S: 5, 15, 25, 35, 45, 55, 65, 75, 85, 95, sparkle!

Continue to have students count around in the circle. After a student says "sparkle" and sits, the next student starts over at 5. Continue until all students are sitting.

Add to 9 (5 minutes)

Materials: (T) 9 + addition cards (Fluency Template 1)
(S) Personal white board

Note: This activity supports the *make ten* addition strategy as students fluently decompose an addend in order to make ten.

Show an addition card (e.g., 9 + 3). Students write the matching three-addend equation (9 + 1 + 2 = 12). Repeat with other cards as time allows.

Friendly Fact Go Around: Make It Equal (5 minutes)

Materials: (T) Friendly Fact Go Around: Make It Equal (Fluency Template 2)

Note: This activity reinforces the *make ten* addition strategy and promotes an understanding of equality.

Project Friendly Fact Go Around: Make It Equal. Point to the problem 9 + 6 = 10 + ___ and call on a student. The student answers "five." The class says the number sentence aloud with the answer: "9 + 6 = 10 + 5." If a student gives an incorrect answer, he then repeats the correct equation that the class has given. The teacher can adapt the problem to individual students.

Application Problem (5 minutes)

Materials: (S) Personal white board

Note: Today's Application Problem asks students to generate and solve problems to match a given number sentence within 10. This prepares students for today's lesson in which students generate and solve problems to match given number sentences within 20.

Display the number sentence 9 = ___ + 3. Ask partners to work together to create a story problem to match this number sentence. Partners record the problem on one of their personal white boards. Then partners work together to solve their problem using their other personal white board.

Extension: Have several pairs of students share their problems, ensuring the problems match the number sentence. Remind students that 9 = ___ + 3 can also be written as ___ + 3 = 9. The equal sign means the amounts on either side of it are balanced (the same amount).

Concept Development (30 minutes)

Materials: (T) Separate number sentences (Template 1), join number sentences (Template 2)
(S) Bag of 20 connecting cubes, personal white boards

Note: Lessons 9–10 ask students to generate and solve problems when given a number sentence. Lesson 9 focused on join and separate problems with an unknown result. Lesson 10 focuses on join and separate problems with an unknown start or change.

Prior to the lesson, distribute bags of connecting cubes and personal white boards. Students will carry these materials with them throughout the lesson.

Part 1: Separate Problems

T: Today we will continue working with partners to create and solve word problems to match number sentences. Stand up and walk around the room. When I tell you to stop, find a partner and sit on the floor with them. When everyone is sitting, I'll give you the next step of the directions.

S: (Walk around the room.)

T: Stop!

S: (Find a partner and sit on the floor with them.)

T: With your partner, create a separate problem. It might be about food at a restaurant, a day at the zoo, shopping at the store, or any other topic you choose.

S: (Work with a partner to create a separate problem.)

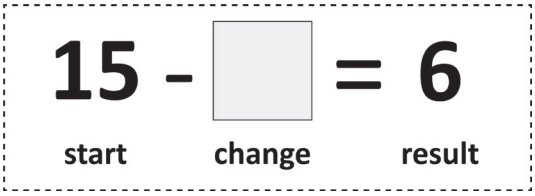
T: (Have several partners share their separate problems with the class. After each pair of students shares, ask follow-up questions.) How do you know this is a separate problem? What is being separated? What parts of the problem do you know: the start, change, or result? What are you trying to find: the start, change, or result?

T: This time, I will display a number sentence. (Display 15 − ___ = 6 from Template 1.) With your partner, create a separate problem to match this number sentence. After creating the problem, take turns repeating it to each other. Then write the problem on one of your personal white boards. (If students need support to generate a problem, it may be helpful to record *start*, *change*, and *result* below the number sentence.)

S: (Create a separate problem to match 15 − ___ = 6.)

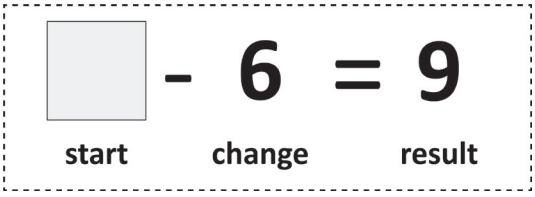
T: Now work together to solve your problem. Use connecting cubes or draw pictures.

S: (Solve and get the solution 9.)



T: (Have several pairs of students share their problems and solutions. After each pair shares, ask follow-up questions.) Is this a separate problem? What is being separated? What do we know from listening to your problem? What are we trying to find? Do the numbers in your problem match the numbers in the number sentence? How did you solve to find the missing amount? How do your cubes or drawing match the parts of the number sentence?

T: Now I have another challenge for you and your partner. I'm going to change our number sentence just a little. You and your partner will create a new problem to match my new number sentence. (Display the new number sentence ___ − 6 = 9 from Template 1. Provide time for partners to generate problems to match the number sentence. If students need support to generate a problem, provide additional support by writing *start*, *change*, and *result* below the number sentence.)



S: (Create a separate problem to match ___ − 6 = 9.)

T: Work with your partner to solve your problem. Use connecting cubes or drawings.

S: (Use connecting cubes or drawings to find the solution, 15.)

T: (Call on several pairs of students to share their problems. Ask each pair follow-up questions.) How do you know this is a separate problem? What is being separated? Does your problem tell us the starting amount, change, and result? What is your problem asking us to find? How did you find the solution? How do your connecting cubes or drawing match the parts of your problem?

NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

When students turn and talk with a partner, they are hearing different ways their peers are thinking about solving problems. Hearing others talk about word problems more than once helps students, including some emergent bilingual students understand and acquire language around this topic.

Part 2: Join Problems

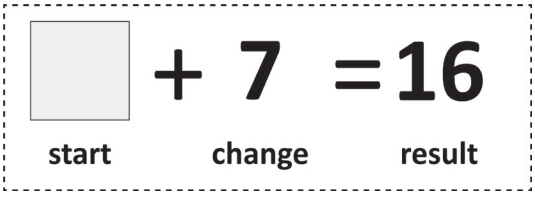
T: Stand up and walk around the room once again. When I tell you to stop, find a new partner and sit on the floor with them. When everyone is sitting, I'll give you the next step of the directions.

S: (Walk around the room.)

T: Stop!

S: (Find a new partner and sit on the floor with them.)

T: I am going to show you a different number sentence. (Display the number sentence ___ + 7 = 16 from Template 2.) This time, you and your partner will create a problem to match this number sentence. After creating the problem, take turns repeating it to each other. Then write the problem on one of your personal white boards. (If students need support to generate a problem, it may be helpful to record *start*, *change*, and *result* below the number sentence.)



S: (Create a problem to match ___ + 7 = 16.)

T: What type of problem did you and your partner create: join or separate?

S: Join.

T: Why did you decide to make a join problem?

S: The *+ 7* tells us 7 is being joined to the starting amount.

T: Yes! Now work together to solve your problem. Use connecting cubes or draw pictures.

S: (Solve and get the solution 9.)

T: (Have several pairs of students share their problems and solutions. After each pair shares, ask follow-up questions.) What do we know from listening to this problem? What are we trying to find? How do we know this is a join problem? What is being joined? Do the numbers in their problem match the numbers in our number sentence?

If time allows, display the number sentence 7 + ___ = 16 from Template 2 and have partners generate a problem to match. Then discuss the similarities and differences between their problems for ___ + 7 = 16 and problems for 7 + ___ = 16.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted time.

Student Debrief (10 minutes)

Lesson Objective: Generate and solve problem situations when given an addition or subtraction number sentence within 20.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- Look at Problem 1. Compare your problem to your partner's problem. What is the same about both problems? What is different?
- Look at Problem 2. Did you create a join or separate problem to match this number sentence? Why?
- How do you know your problem matches this number sentence?
- How did you solve your problem? How do you know your solution is correct?
- How do your connecting cubes or drawings match the parts of the number sentence?
- Is there a different number sentence that might match the problem you created?

Exit Ticket (5 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

Name _____ Date _____

Create a problem to match each number sentence.
Solve your problem using connecting cubes or drawings.
Write your answer in the box.

1. $6 + \square = 12$

Problem: _____

_____

_____

_____

2.

$$8 = \square - 11$$

Problem: _____

_____

_____

_____

Name _____ Date _____

Create a problem to match the number sentence.
Solve your problem using connecting cubes or drawings.
Write your answer in the box.

$\square - 5 = 13$

Problem: _____

_____

_____

_____

9 + 2	3 + 9
9 + 4	4 + 9
9 + 5	5 + 9
9 + 6	6 + 9
9 + 7	7 + 9
9 + 8	8 + 9

9 + addition cards

Part 1

9 + 1 = 10 + _____	9 + 7 = 10 + _____	9 + 3 = 10 + _____
9 + 8 = 10 + _____	9 + 2 = 10 + _____	9 + 6 = 10 + _____

Part 2

2 + 9 = 10 + _____	6 + 9 = 10 + _____	7 + 9 = 10 + _____
4 + 9 = 10 + _____	1 + 9 = 10 + _____	8 + 9 = 10 + _____

Part 3

9 + 6 = _____ + 10	9 + 4 = _____ + 10	9 + 1 = _____ + 10
9 + 7 = _____ + 10	9 + 5 = _____ + 10	9 + 3 = _____ + 10
9 + _____ = 10 + 4	9 + _____ = 10 + 7	9 + _____ = 10 + 5
9 + _____ = 10 + 2	9 + _____ = 10 + 8	9 + _____ = 10 + 3

friendly fact go around: make it equal

$$15 - \square = 6$$

separate number sentences

5

11

5

1

join number sentences

$$16 = 7 + \square$$

$$16 = \square + 7$$

Application Problem

Stories will vary, but should match 9 = ___ + 3 or ___ + 3 = 9.

Fluency Template - 5 Fact Go Around: Make It Equal

Part 1: 0, 6, 2

7, 1, 5

Part 2: 1, 5, 6

3, 0, 7

Part 3: 5, 3, 0

6, 4, 2

5, 8, 6

3, 9, 4

Problem Set

1. 6 (Problems will vary. They should involve a join situation in which 6 is the starting amount and 12 is the result. The change should be the unknown amount.)
2. 19 (Problems will vary. They should involve a separate situation in which 11 is the change and 8 is the result. The start should be the unknown amount.)

Exit Ticket

8 (Problems will vary. They should involve a separate situation in which the change is 5 and the result is 8. The start should be the unknown amount.)

Topic B

Develop and Apply Place Value Understanding

1.2C, 1.2F, 1.3A, 1.4C

Focus Grade Level Standards

Numbers and Operations

The student applies mathematical process standards to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system related to place value. The student is expected to:

1.2C use objects, pictures, and expanded and standard forms to represent numbers up to 120;

1.2F order whole numbers up to 120 using place value and open number lines.

Numbers and Operations

The student applies mathematical process standards to develop and use strategies for whole number addition and subtraction computations in order to solve problems. The student is expected to:

1.3A use concrete and pictorial models to determine the sum of a multiple of 10 and a one-digit number in problems up to 99.

Numbers and Operations

The student applies mathematical process standards to identify coins, their values, and the relationships among them in order to recognize the need for monetary transactions. The student is expected to:

1.4C use relationships to count by twos, fives, and tens to determine the value of a collection of pennies, nickels, and/or dimes.

Foundational Standards

The student is expected to:

K.2B read, write, and represent whole numbers from 0 to at least 20 with and without objects or pictures;

K.2E generate a set using concrete and pictorial models that represents a number that is more than, less than, and equal to a given number up to 20;

K.2F generate a number that is one more than or one less than another number up to at least 20;

K.2G compare sets of objects up to at least 20 in each set using comparative language;

K.2H use comparative language to describe two numbers up to 20 presented as written numerals;

K.2I compose and decompose numbers up to 10 with objects and pictures;

K.4A identify U.S. coins by name, including pennies, nickels, dimes, and quarters;

K.5A recite numbers up to at least 100 by ones and tens beginning with any given number;

1.2B use concrete and pictorial models to compose and decompose numbers up to 120 in more than one way as so many hundreds, so many tens, and so many ones;

1.3B use objects and pictorial models to solve word problems involving joining, separating, and comparing sets within 20 and unknowns as any one of the terms in the problem such as $2 + 4 = [\ ]$; $3 + [\ ] = 7$; and $5 = [\ ] - 3$;

1.3E explain strategies used to solve addition and subtraction problems up to 20 using spoken words, objects, pictorial models, and number sentences;

1.3D apply basic fact strategies to add and subtract within 20, including making 10 and decomposing a number leading to a 10;

1.4A identify U.S. coins, including pennies, nickels, dimes, and quarters, by value and describe the relationships among them;

1.4B write a number with the cent symbol to describe the value of a coin;

1.5B skip count by twos, fives, and tens to determine the total number of objects up to 120 in a set.

Coherence

Module Connections

TEKS:	**1.2C**	Module 2: Introduction to Place Value through Addition and Subtraction Within 20
		Module 4: Place Value, Addition and Subtraction to 40
		Module 6: Place Value to 120, Comparison, Understanding Income with Addition and Subtraction to 100
	1.2F	Module 4: Place Value, Addition and Subtraction to 40
		Module 6: Place Value to 120, Comparison, Understanding Income with Addition and Subtraction to 100
	1.3A	Module 4: Place Value, Addition and Subtraction to 40
		Module 6: Place Value to 120, Comparison, Understanding Income with Addition and Subtraction to 100
	1.4C	Module 6: Place Value to 120, Comparison, Understanding Income with Addition and Subtraction to 100
Instructional Days:	8	

In Topic A, students represented and solved addition and subtraction problems within 20. Topic B continues to build students' knowledge of numbers and number relationships as they develop and apply place value understanding. Explorations in Topic B include representing and ordering numbers in Lessons 11–14, determining sums within 99 in Lessons 15–16, and skip-counting to determine the value of a collection of coins in Lessons 17–18.

Students develop their place value understanding in Lessons 11–12 by representing numbers within 120 using objects, pictures, and standard and expanded forms **(1.2C)**. In Lessons 13–14, students continue to build upon their understanding as they order numbers within 120 using place value and open number lines **(1.2F)**.

Lessons 15–16 have students apply place value understanding to determine the sum of a multiple of 10 and a one-digit number using concrete and pictorial models **(1.3A)**. These models include connecting or linking cubes, place value charts, place value drawings, and open number lines. As various models are used, the students and teacher make connections between them. This supports the transition from relying on concrete models toward using pictorial representations.

Topic B ends with Lessons 17–18 as students apply their knowledge of place value and number relationships to count by twos, fives, and tens to determine the value of a collection of pennies, nickels, and/or dimes **(1.4C)**. As students work with coins and images of coins, they learn that skip counting is an effective and efficient method for determining the value of a set of coins.

A Teaching Sequence Toward Proficiency of Developing and Applying Place Value Understanding	
Objective 1:	**Represent numbers within 120 using objects, pictures, and standard and expanded forms.** **(Lessons 11–12)**
Objective 2:	**Order numbers within 120 using place value and open number lines.** **(Lessons 13–14)**
Objective 3:	**Determine the sum of a multiple of 10 and a one-digit number using concrete and pictorial models.** **(Lessons 15–16)**
Objective 4:	**Count by twos, fives, and tens to determine the value of a collection of pennies, nickels, and/or dimes.** **(Lessons 17–18)**

Terminology

Familiar Terms and Symbols

The Additional Days School Year (ADSY) lessons are supplemental to the core instructional materials. As such, no new academic vocabulary has been introduced. Continue to use academic language that was introduced during core instruction so students can develop precision in their use of mathematical language. For a list of terms and symbols relevant to Topic B, see the *Familiar Terms and Symbols* sections in module overviews for Modules 2, 4, and 6.

Suggested Tools and Representations

The list below includes tools needed to teach the lessons, and representations that appear in the topic. Note that common classroom staples such as personal white boards, dry erase markers and erasers, scissors, paper, construction paper, chart paper, crayons, markers, pencils, paper clips, glue, clear tape, and masking tape are not included in the list. Printable materials that are included with the lessons, such as templates, are also not included in the list.

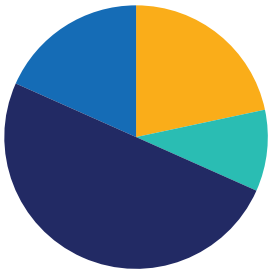
- 5-Group card numbers
- 100-bead Rekenrek (Slavonic abacus having beads with a color change at the five) or other small manipulatives to show tens and ones
- Coins (pennies, nickels, dimes)
- Connecting or linking cubes
- Counters
- Equations
- Expanded form
- Finger formations
- Hide Zero® card numbers
- Hundred charts
- Number bonds
- Number lines (closed and open)
- Number sentences
- Place value charts
- Standard form
- Ten-frames

Lesson 11

Objective: Represent numbers within 120 using objects and pictures.

Suggested Lesson Structure

Fluency Practice	(13 minutes)
Application Problem	(6 minutes)
Concept Development	(30 minutes)
Student Debrief	(11 minutes)
Total Time	**(60 minutes)**



Fluency Practice (13 minutes)

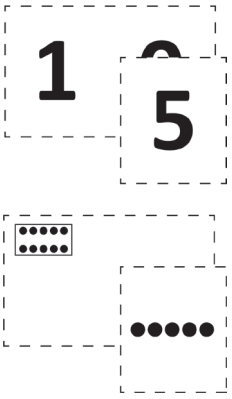
- Hide Zero® Cards **1.2C** (4 minutes)
- Change 10 Pennies for 1 Dime **1.2A, 1.4A** (4 minutes)
- Addition Fluency Review **1.3D, 1.5G** (5 minutes)

Hide Zero Cards (4 minutes)

Materials: (T) Hide Zero cards (Fluency Template 1)
(S) Personal white board

Note: This activity continues to build students' understandings of teen numbers as 10 and some more. Hide Zero cards are made so that the single-digit cards can be laid on top of the 10 card to compose teen numbers. The digit in the ones place can be lifted to show the zero from the 10 hiding behind the single-digit card.

Use the Hide Zero cards to show teen numbers. For example, show 15 by covering the ones place of 10 with 5. Students write number bonds with 10 as a part. The teacher breaks apart the Hide Zero cards to show the two parts (10 and 5).



NOTES ON MULTIPLE MEANS OF REPRESENTATION:

The Hide Zero cards help students understand that each teen number is composed of 10 and some more ones. For example, the teen number 15 can also be thought of as a group of 10 and 5 more ones.

Change 10 Pennies for 1 Dime (4 minutes)

Materials: (T) 10 pennies, 1 dime
(S) 10 pennies and 1 dime per pair

Note: This activity connects coin values to place value as students learn that 10 cents is equal to 1 dime, just as 10 ones are equal to 1 ten.

Lay out 10 pennies into 5-groups as students count aloud (1 cent, 2 cents, etc.). Make sure students include the unit "cents" as they count.

Exchange the 10 pennies for 1 dime and say, "10 pennies are equal to 10 cents." Repeat the same process, but this time, say, "10 pennies are equal to 1 dime." Students repeat the activity with a partner.

Addition Fluency Review (5 minutes)

Materials: (S) Addition fluency review (Fluency Template 2)

Note: This addition review sheet contains the majority of addition facts within 10 (excluding some + 0 and + 1 facts).

Students complete as many problems as they can in three minutes. Choose a counting sequence for early finishers to practice on the back of their papers, such as counting by ones from 46 or counting by tens from 3. When time runs out, read the answers aloud so students can correct their work.

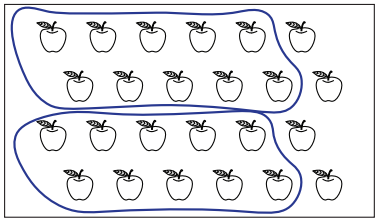
Application Problem (6 minutes)

Materials: (T) Picking apples recording sheet (Application Template 1), Hide Zero cards (Fluency Template 1), (S) Farmer Amal's apples (Application Template 2)

Note: This problem sets a purpose for arranging objects into groups of ten when counting. This prepares students to think in terms of tens and ones for today's Concept Development.

(Distribute Farmer Amal's apples (Application Template 2).) A bag can hold ten apples. Farmer Amal puts his apples into bags. How many bags does Farmer Amal fill? How many apples are left over?

Extension: After students finish solving, the teacher uses the Picking apples recording sheet (Application Template 1) to record the number of bags and number of leftover apples. Then the teacher represents these amounts using the Hide Zero cards 20 and 4. Finally, the teacher puts together the Hide Zero cards to show that Farmer Amal has a total of 24 apples.



Bags of Apples	Single Apples
2	4

How many apples did Farmer Amal pick?

2 4

Concept Development (30 minutes)

Materials: (T) Hide Zero cards (Fluency Template 1), How many apples (Template)
(S) Bag of 100 connecting cubes and one personal white board per pair of students

Note: Part 1 serves as a review of counting sets in order to support students in using objects and drawing pictures to represent numbers.

Part 1: Counting Sets

T: On Monday, Farmer Amal goes apple picking again. He puts his apples in bags of 10. (Display how many apples (Template).) This picture shows the number of apples Farmer Amal picked today. How many apples does Farmer Amal put in bags? How many apples are left over? Chat with a partner. Write the answers on your white board.

S: (Work with a partner.)

T: How many apples are in bags?

S: 40.

T: We know there are 10 apples in each bag. We can touch each bag and skip-count by tens to find a total of 40 apples in the bags. (Model skip-counting the bags of apples. Put the 40 Hide Zero card below the How Many Apples template.) How many apples are left over?

S: 3.

T: We can touch each leftover apple and count by ones to find the number of leftover apples. (Model counting the leftover apples. Put the 3 Hide Zero card below the How Many Apples template.)

T: With your partner, decide how many total apples Farmer Amal picked today. Write the answer on your white board.

S: (Discuss with a partner. Record the answer.)

T: How many apples did Farmer Amal pick? How did you find the answer?

S: We counted all of the apples. → We skip-counted by tens and then counted on 3 more.

T: Yes. We can count each apple. We can also skip-count by tens and count on by ones. Which way is more efficient?

S: Skip-counting by tens and counting on by ones.

T: (Model skip-counting the apples by tens to 40 and counting on 3 more. Then have the class practice doing this together.) We said Farmer Amal has 4 bags of ten apples and 3 leftover apples. Is this the same amount as 43?

S: Yes. 4 tens is 40. 3 more is 43.

T: (Demonstrate putting together and taking apart the Hide Zero cards to model this.) What does the 4 in our number represent?

S: 4 tens. → 40.

T: What does the 3 in our number represent?

S: 3 ones. → 3 leftovers. → 3.

Part 2: Representing Sets with Cubes

T: Stand. One partner holds the white board, and the other partner holds the bag of connecting cubes. Find a new partner. If you are holding a white board, find a partner who has a bag of cubes.

S: (Stand and find a new partner.)

T On Tuesday, Farmer Amal picks 62 apples. Work with your partner to show this amount using connecting cubes.

S: (Build a set of 62 connecting cubes.)

T: How did you use cubes to show Farmer Amal's apples?

S: We counted a pile of 62 cubes. → We counted 6 piles of ten cubes and a pile of 2 leftover cubes. → We built 6 towers of cubes and had 2 loose cubes.

T: Look at the different ways partners showed 62 cubes. Some made one pile with 62 cubes. Others arranged their cubes into groups of ten and leftover ones. If you want to check to make sure they really do have 62 cubes, which arrangement is more efficient to count?

S: The groups of ten.

T: Grouping your cubes into towers of ten, or ten-sticks, helps you count how many apples we have in all. (Have a pair of students with towers of ten place their 6 towers and 2 leftovers in front of the class for all students to see. Touch the towers and skip-count by tens. Place the 60 Hide Zero card below the 6 towers. Touch and count the leftover apples. Place the 2 Hide Zero card below the 2 leftover cubes.) We have 60 and 2 leftovers. When we put these cards together, it makes 62. Because these students arranged their cubes into groups of ten, the cubes could be counted more efficiently.

Part 3: Representing Sets with Drawings

T: Stand. One partner holds the white board, and the other partner holds the bag of connecting cubes. Find a new partner. If you have a white board, make sure your partner has a bag of cubes.

S: (Stand and find a new partner.)

T On Wednesday, Farmer Amal picks 38 apples. Work with your partner to show this amount using connecting cubes.

S: (Build a set of 38 connecting cubes.)

T: How did you use cubes to show 38?

S: We built 3 towers of ten and counted 8 leftovers.

T: Let's help this pair of students count to make sure they have 38. I will touch their tens and ones while you count.

S: 10, 20, 30, 31, 32, 33, 34, 35, 36, 37, 38.

T: (Show the number 38 using Hide Zero cards. Point to the 3.) What does this part of the number represent?

S: The 3 towers of ten. → 30.

T: (Point to the 8.) What does this part of the number represent?

S: The 8 leftovers.

T: What if we didn't have connecting cubes? How could we draw a picture to show this amount?

S: Draw 38 squares. → Make place value drawings.

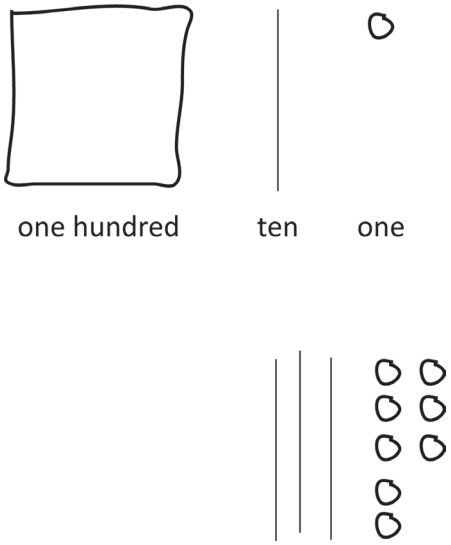
T: Which way is more efficient?

S: Making place value drawings.

T: Place value drawings, or quick tens, are an efficient way to represent numbers. (Model drawing a hundred, ten, and one using place value drawings.) We draw a square to represent 100, a stick to represent 10, and a little circle to represent 1. Work with your partner to represent 38 using place value drawings.

S: (Draw 3 ten-sticks and 8 circles.)

T: (Have partners hold up their drawings to ensure everyone drew 3 sticks and 8 circles.) Place value drawings are an efficient way to represent a set.



As time allows, practice representing other numbers within 120 using place value drawings.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted time.

Problem 5 serves as a challenge task. All students may attempt this task, or it may be assigned to early finishers of students in need of a challenge.

Student Debrief (11 minutes)

Lesson Objective: Represent numbers within 120 using objects and pictures.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

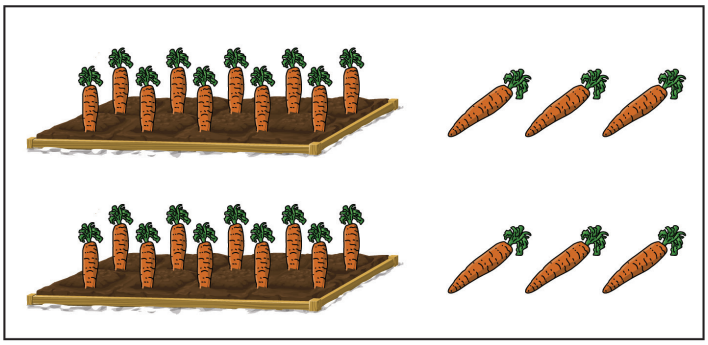
- Look at Problem 1. How many carrots are there? How did you find the answer?
- Look at Problem 1. What is an efficient (faster) way to find the number of dots?
- Look at Problem 2. Compare your drawing to your partner's drawing. What is the same? What is different?
- How can we make counting efficient (faster)?
- On your personal white board, write an answer to the following question: What are some ways we can represent a number? Then, share your answer with a partner.

Exit Ticket (5 minutes)

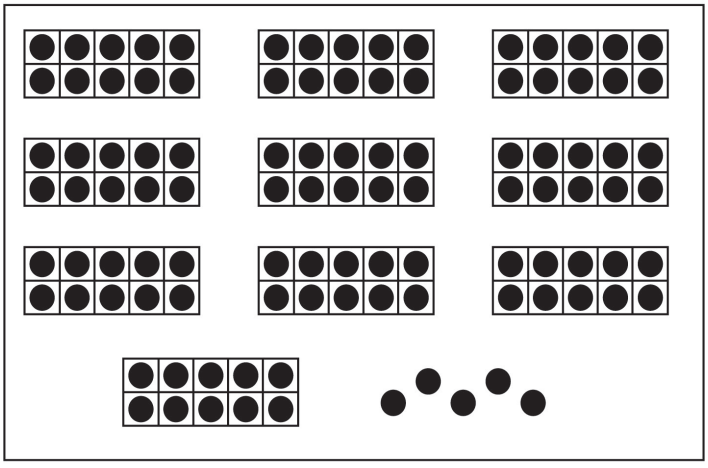
After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

Name _____ Date _____

1. Draw a line from the set to its matching number.



65



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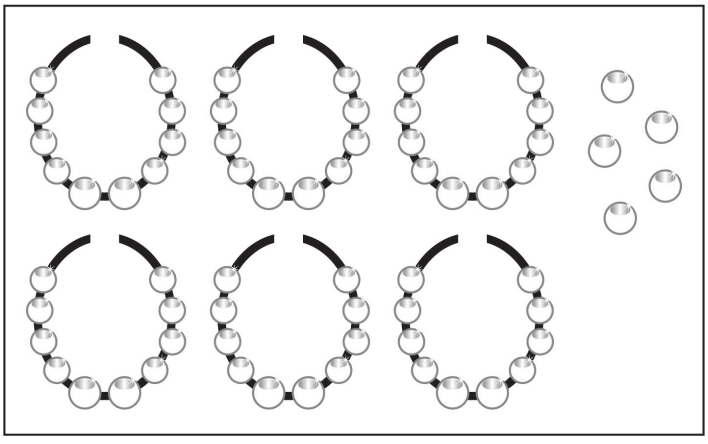


105

Build each number using cubes.
Then record your work by making place value drawings.

2. 87

3. 40

4. 112

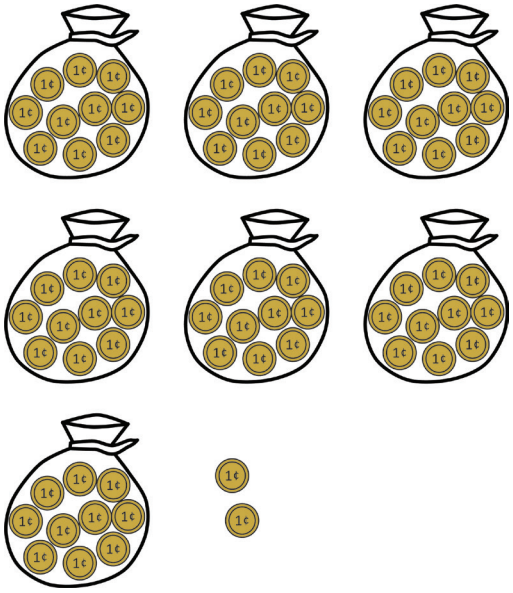
Read the problem. Using connecting cubes or drawings to solve.

5. Crayons come in packs of ten. Lula has 6 single crayons and 3 packs. Lula says she has 63 crayons in all. Is Lula correct? Draw a picture to show your thinking.

Name _____ Date _____

Circle the number that matches the total amount of coins.

1.



27

102

72

Build 49 using cubes. Then record your work by drawing quick tens.

2. 49

3. Ten pencils come in a pack. Reid has 7 packs of pencils and 2 single pencils. He thinks he has 72 pencils in all. Is Reid correct? Draw a picture to show your thinking.

10	20
30	40
50	60
70	80

Hide Zero cards

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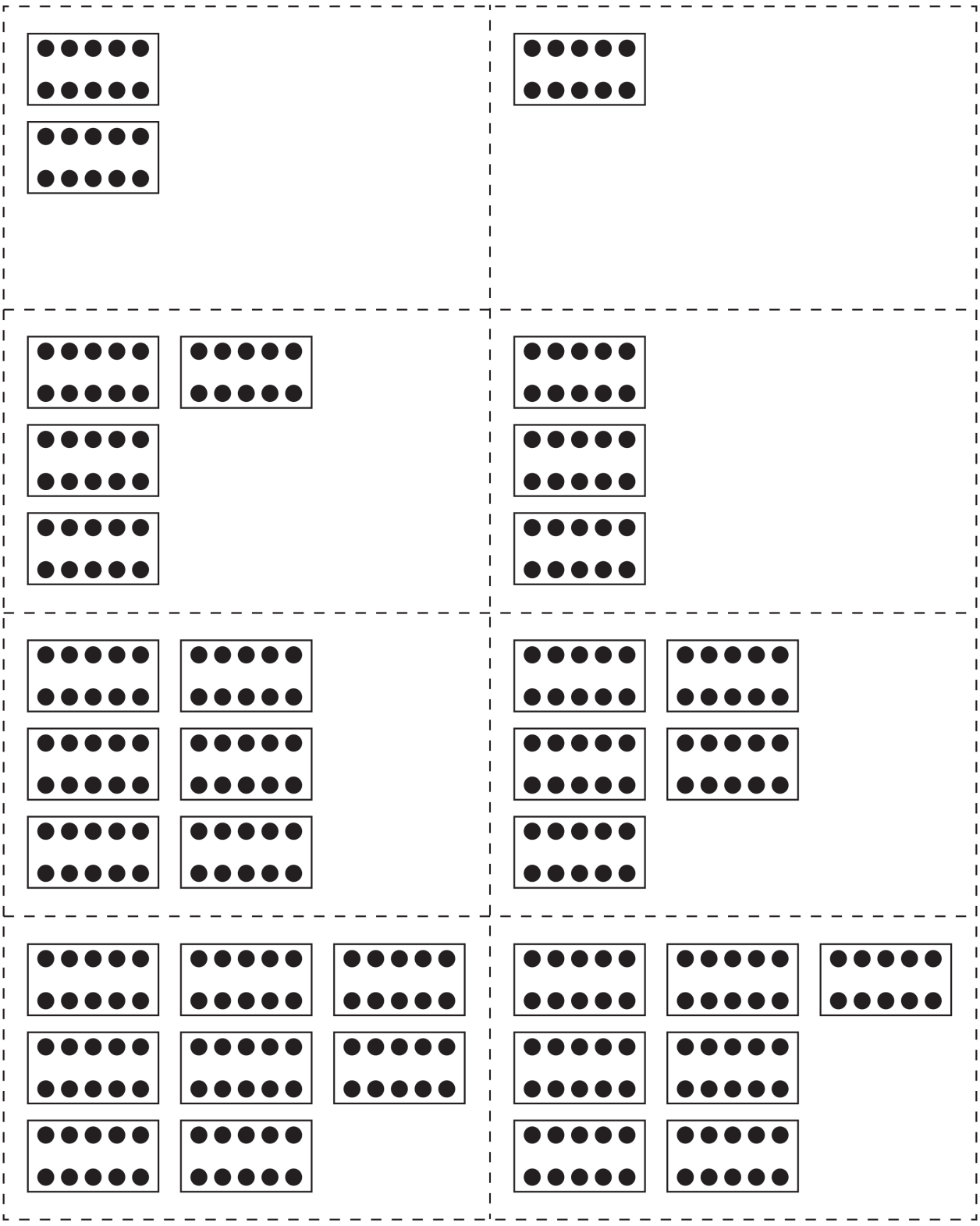

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		0	1
2	3	4	5
6	7	8	9

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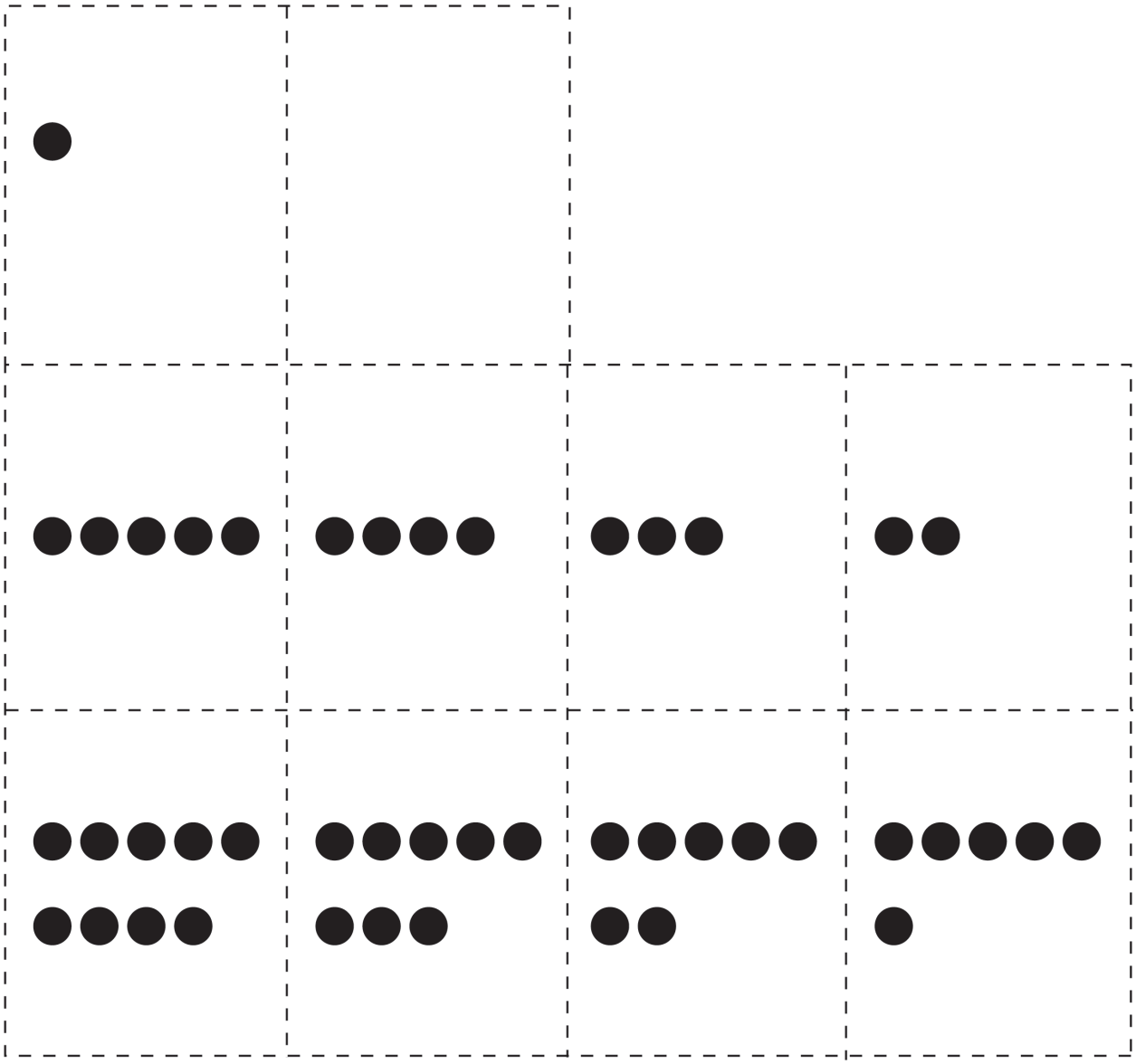

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Name _____ Date _____

1.	2 + 0 = _____	16.	7 + 3 = _____	31.	0 + 4 = _____
2.	2 + 1 = _____	17.	7 + 2 = _____	32.	1 + 4 = _____
3.	2 + 2 = _____	18.	5 + 0 = _____	33.	2 + 4 = _____
4.	3 + 4 = _____	19.	5 + 1 = _____	34.	2 + 6 = _____
5.	4 + 4 = _____	20.	5 + 2 = _____	35.	2 + 7 = _____
6.	3 + 3 = _____	21.	5 + 4 = _____	36.	2 + 8 = _____
7.	4 + 3 = _____	22.	6 + 4 = _____	37.	5 + 3 = _____
8.	5 + 3 = _____	23.	2 + 3 = _____	38.	5 + 4 = _____
9.	3 + 5 = _____	24.	2 + 4 = _____	39.	5 + 5 = _____
10.	2 + 5 = _____	25.	2 + 5 = _____	40.	3 + 6 = _____
11.	0 + 6 = _____	26.	3 + 0 = _____	41.	4 + 6 = _____
12.	1 + 6 = _____	27.	0 + 3 = _____	42.	6 + 3 = _____
13.	2 + 6 = _____	28.	1 + 3 = _____	43.	8 + 0 = _____
14.	6 + 2 = _____	29.	2 + 3 = _____	44.	0 + 6 = _____
15.	6 + 1 = _____	30.	3 + 2 = _____	45.	3 + 2 = _____

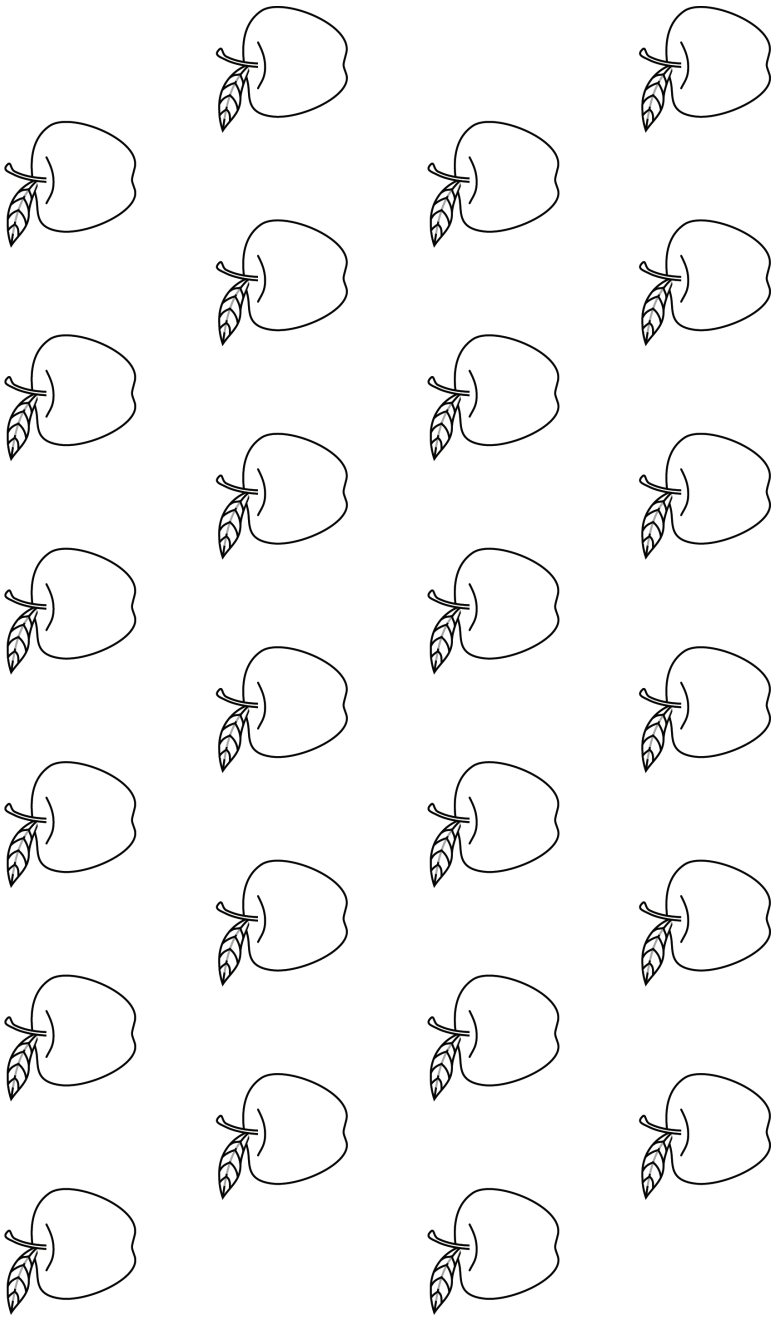
addition fluency review

Bags of Apples	Single Apples

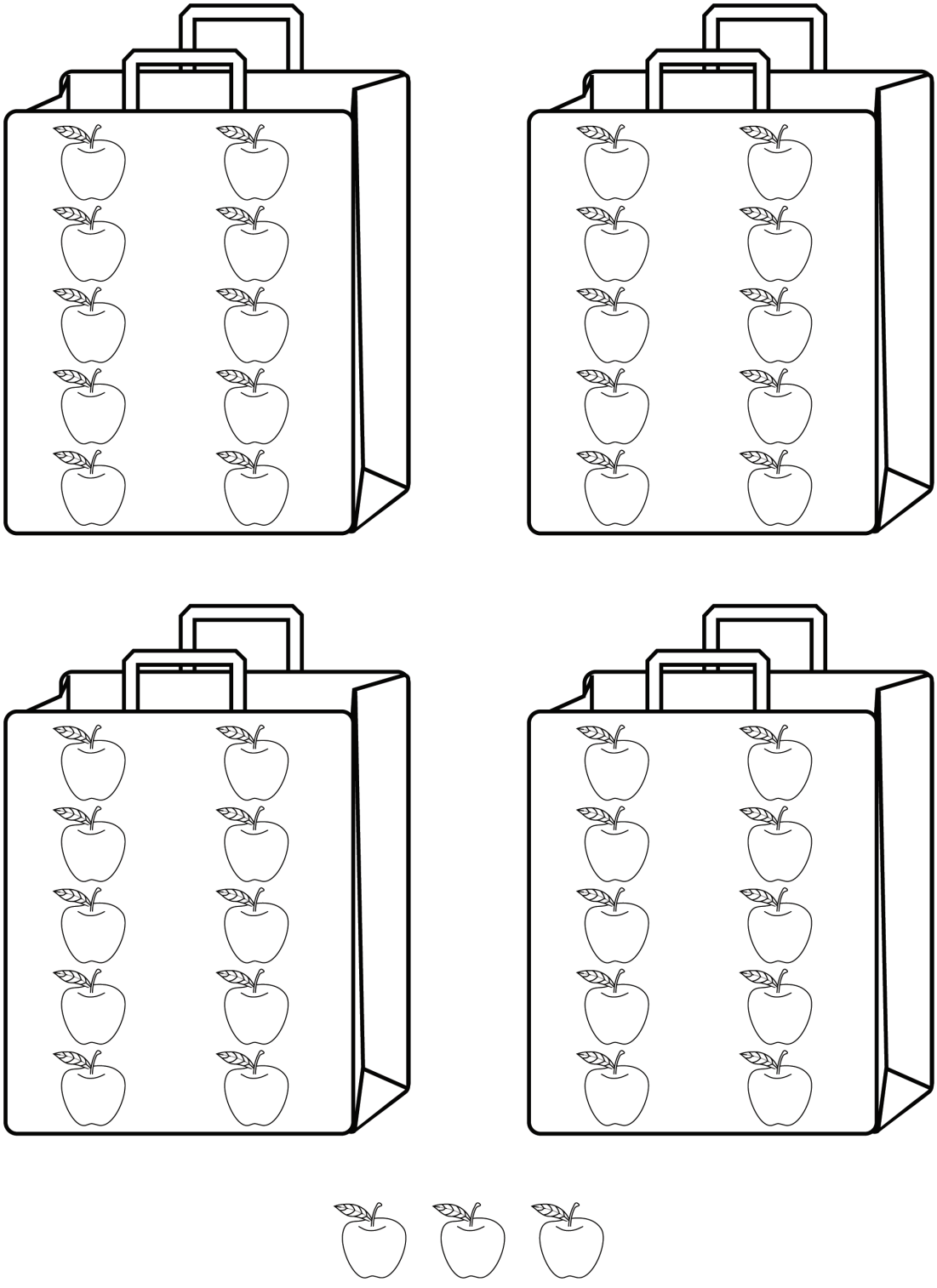
How many apples did Farmer Amal pick?

_____ _____

picking apples recording sheet



Farmer Amal's apples



how many apples

Application Problem

2 bags
4 apples

Addition Fluency Review

1. 2	16. 10	31. 4
2. 3	17. 9	32. 5
3. 4	18. 5	33. 6
4. 7	19. 6	34. 8
5. 8	20. 7	35. 9
6. 6	21. 9	36. 10
7. 7	22. 10	37. 8
8. 8	23. 5	38. 9
9. 8	24. 6	39. 10
10. 7	25. 7	40. 9
11. 6	26. 3	41. 10
12. 7	27. 3	42. 9
13. 8	28. 4	43. 8
14. 8	29. 5	44. 6
15. 7	30. 5	45. 5

Problem Set

1. 26
   105
   65
2. (Drawings should show 8 tens and 7 ones.)
3. (Drawings should show 4 tens.)
4. (Drawings should show 1 hundred, 1 ten, and 2 ones.)
5. No. Lula has 36 crayons. (Drawings should show 3 tens and 6 ones.)

Exit Ticket

1. 72
2. (Drawings show 4 tens and 9 ones.)
3. Yes. Reid has 72 pencils. (Drawings should show 7 tens and 2 ones.)

Lesson 12

Objective: Represent numbers within 120 using standard and expanded forms.

Suggested Lesson Structure

Fluency Practice	(13 minutes)
Application Problem	(6 minutes)
Concept Development	(30 minutes)
Student Debrief	(11 minutes)
Total Time	**(60 minutes)**

Fluency Practice (13 minutes)

- Subtraction with Cards **1.3D, 1.5G** (5 minutes)
- Change 10 Pennies for 1 Dime **1.2A, 1.4A** (5 minutes)
- Magic Counting Sticks **1.2A, 1.2B** (3 minutes)

Subtraction with Cards (5 minutes)

Materials: (S) 1 set of numeral cards 1–10 per student (Lesson 5 Fluency Template)

Note: This fluency activity strengthens students' abilities to subtract within 10.

Students sit in pairs. Students shuffle their numeral cards. Each partner places their deck of cards face down. Each partner flips over two cards and subtracts the smaller number from the larger one. The partner with the smallest difference keeps the cards played by both players that round.

For example, Player A draws 4 and 5 and gives the difference of 1. Player B draws 9 and 4 and gives the difference of 5. Since $1 < 5$, Player A keeps the cards. If the differences are equal, the cards are set aside, and the winner of the next round keeps the cards from both rounds. At the end of the game, the players will each be left with 1 card. They each flip their last card over and the player with the highest card says the difference and collects the cards. Students continue to play as time allows.

Change 10 Pennies for 1 Dime (5 minutes)

Materials: (S) 20 pennies and 1 dime for each pair of students

Note: This activity connects coin values to place value as students learn that 10 cents is equal to 1 dime, just as 10 ones are equal to 1 ten.

Students work in pairs. Partner A begins with 10 pennies. Partner B begins with 10 pennies and 1 dime. Both partners whisper-count as Partner A counts 10 pennies into 5-groups (1 cent, 2 cents, etc.). Partner B changes 10 cents for 1 dime and says, "10 cents equals 1 dime." Students count on, "11 cents, 12 cents, 13 cents, etc.," replacing the second set of 10 pennies with a dime and saying, "20 cents equals 2 dimes." Then Partners A and B switch roles.

Magic Counting Sticks (3 minutes)

Materials: (T) Hide Zero cards (Lesson 11 Fluency Template 1)

Note: This activity reviews the concept of ten as a unit and as 10 ones. (Adjust activity as needed to meet varying physical student needs.)

T: Fingers are special tools that can be used for counting and representing numbers. We can call these special tools "magic counting sticks." Let's practice counting to ten using our magic counting sticks.

S: (Hold up 1 finger for each number counted.) 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.

T: When you get to ten, lock your fingers together and call this a bundle of ten. Show me a bundle of ten.

S: (Lock fingers together.)

T: (Arrange students into partners and assign Partners A and B. Show 14 with Hide Zero cards.) How many tens are in 14?

S: 1 ten.

T: (Point to the 1 in 14.) Partner A, show 1 ten with your magic counting sticks. (Partner A holds up a bundled ten.) How many ones should Partner B show?

S: 4 ones.

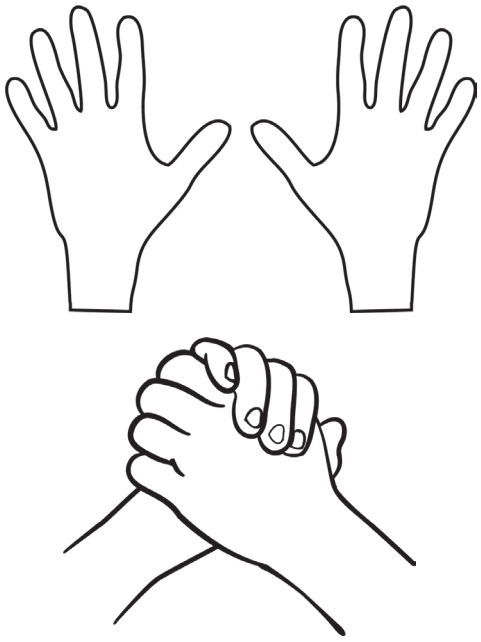
T: (Point to the 4.) Partner B, show 4 ones. 1 ten and 4 ones is 14. Partner A, open up your ten. How many fingers do you have?

S: 10 fingers.

T: (Take apart the Hide Zero cards to show 10 and 4.) 10 fingers + 4 fingers is…?

S: 14 fingers.

Alternate partners and repeat with other teen numbers.



(Ten ones represented by a bundle of 10.)

NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

Providing multiple options for students to show what they know increases access for all students. When students show numbers using their "magic counting sticks" they are using a physical action to show each number.

Application Problem (6 minutes)

Materials: (S) Connecting cubes, personal white board

Asher has 4 packs of 10 stickers and 6 extra stickers. Jade has 46 stickers. Do both children have the same amount of stickers? How do you know?

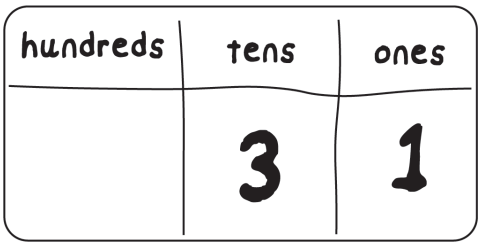
Note: In this problem, students use what they learned in Lesson 11 to interpret the value of numbers in terms of tens and ones. As students use objects or drawings to represent each number, they realize that both children have the same amount of stickers.

Concept Development (30 minutes)

Materials: (T) Connecting or linking cubes, Hide Zero cards (Lesson 11 Fluency Template 1)
(S) Connecting or linking cubes, personal white board

Prior to the lesson, draw a place value chart on the classroom white board. Include hundreds, tens, and ones places. Have students sit in a circle on the carpet near the place value chart.

Part 1: Numbers in Standard Form



T: (On the carpet, represent 13 and 31 using connecting cubes.) Which set represents 31? How do you know?

S: (Point to the set of 31.) I counted it. 10, 20, 30, 31.

T: Yes! Is there a way to know this is 31 without counting?

S: I know it's 31 because there are 3 tens and 1 one.

T: (Record 3 tens and 1 one on the place value chart.) I can record this on my place value chart by writing 3 in the tens place and 1 in the ones place. On your personal white board, show me how you would write this as a number.

S: (Write 31.)

T: (Model writing 31 in standard form.) When we write 31 this way, we are writing the number in standard form. How is writing a number in standard form the same as writing it on a place value chart?

S: You write 3 and 1.

T: How is writing a number in standard form different from writing it on a place value chart?

S: With standard form, you don't see the names of places above the number.

T: When you write a number in standard form, you must remember that each digit has a value depending on its place. (Represent 31 using Hide Zero cards. Then break apart the cards to show 30 and 1.)

T: Now look back at the other set of connecting cubes on the carpet. How many tens are in this set?

S: 1.

T: How many ones are in this set?

S: 3.

T: (On the place value chart, write 1 ten and 3 ones.) Write this number in standard form.

S: (Write 13.)

Continue to represent numbers within 120 using connecting cubes. Ask students to record each number using standard form.

Part 2: Numbers in Expanded Form

T: (On the carpet, represent 24 and 104 connecting cubes.) Which set represents 24? How do you know?

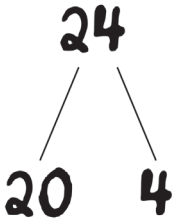
S: (Point to the set of 24.) I counted it. 10, 20, 21, 22, 23, 24.

T: Yes! Is there a way to know this is 24 without counting?

S: I know it's 24 because there are 2 tens and 4 ones.

T: (Record 2 tens and 4 ones on the place value chart.) I can record 24 on my place value chart by writing 2 in the tens place and 4 in the ones place. On your personal white board, draw a number bond that shows the tens and ones for 24.

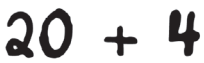
S: (Draw a number bond showing that 20 and 4 make a total of 24.)



T: Look at your number bond. What numbers are we adding to make 24?

S: 20 and 4.

T: (Write 20 + 4 on the board.) When we write 20 + 4, we are writing 24 in expanded form. Notice that we write the bigger number first. On your personal white board, write 24 in expanded form.



S: (Write 20 + 4.)

T: Look back at the other set on the carpet. What number is represented here?

S: 104.

T: Draw a number bond that shows the hundreds and ones for 104.

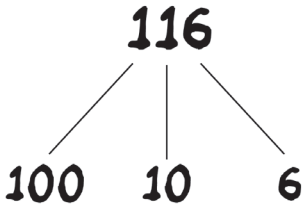
S: (Draw a number bond showing that 100 and 4 make a total of 104.)

T: Which number is bigger, 100 or 4?

S: 100.

T: Use the parts of your number bond to write 104 in expanded form. Remember, when we write numbers in expanded form, we start with the bigger number.

Continue to represent numbers within 120 using base connecting cubes. Ask students to record each number using a number bond and then expanded form. When writing three-digit numbers, the number bond may need to have three parts (see example.)



100 + 10 + 6

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted time.

Student Debrief (11 minutes)

Lesson Objective: Represent numbers within 120 using standard and expanded forms.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- Look at Problem 1. How does the number you wrote match the connecting cubes?
- Look at the number you wrote for Problem 4. What does the 1 represent?
- Look at the number you wrote for Problem 5. What does the 1 represent?
- Look at Problem 9. How is writing expanded form similar to a number bond?
- How is expanded form similar to standard form?
- How is expanded form different from standard form?

Exit Ticket (5 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

Name _____ Date _____

Write the number of hundreds, tens, and ones. Then write the number in standard form on the line.

1.

53

hundreds	tens	ones

_____

2.

111

hundreds	tens	ones

_____

3.

107

hundreds	tens	ones

_____

Write the number in standard form.

4.

hundreds	tens	ones
1	0	2

_____

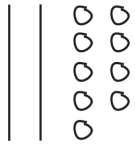
5.

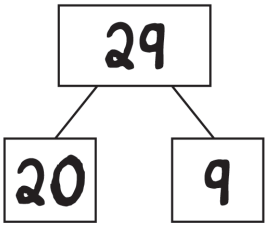
hundreds	tens	ones
	1	2

_____

Fill in the number bond to match the place value drawings.
Then write the number in expanded form and standard form.
Problem 6 has been done for you.

6.

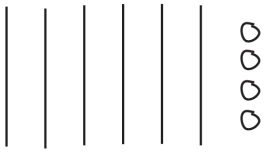


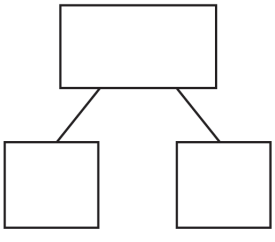


20 + 9

29

7.

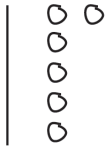


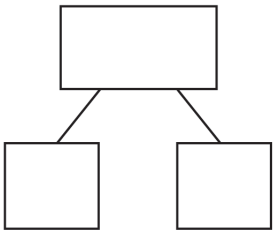


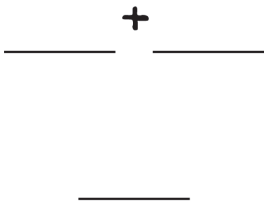
_____ + _____

_____

8.







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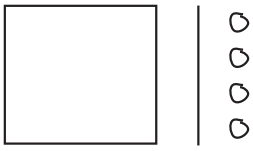
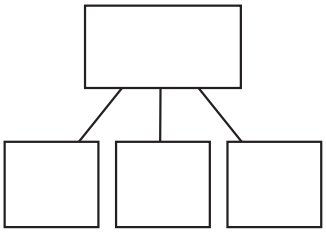
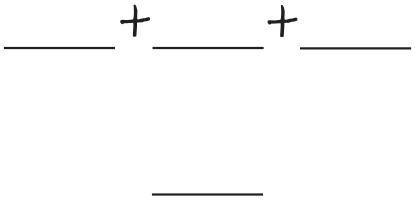






Name _____ Date _____

Write the number of tens and ones. Then complete the sentence.

1.

tens	ones

There are _____ beads.

Write the number in standard form.

2.

hundreds	tens	ones
	5	9

_____

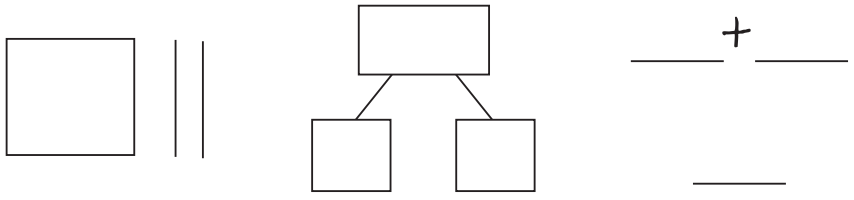
3.

hundreds	tens	ones
1	0	1

_____

Fill in the number bond to match the place value drawing.
Then write the number in expanded form and standard form.

4.



Application Problem

Yes. Explanations will vary, but should include that both students have an equal number of stickers.

Problem Set

1. 5 tens 3 ones; 53
2. 1 hundred 1 ten 1 one; 111
3. 1 hundred 7 ones; 107
4. 102
5. 12
6. 29
7. 64; 60 + 4
8. 16; 10 + 6
9. 114; 100 + 10 + 4

Exit Ticket

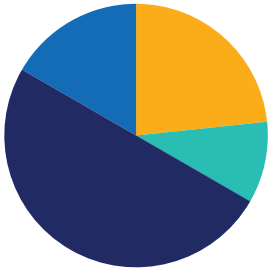
1. 5 tens 4 ones; 54
2. 59
3. 101
4. 120; 100 + 20

Lesson 13

Objective: Order numbers within 120 using place value.

Suggested Lesson Structure

Fluency Practice	(14 minutes)
Application Problem	(6 minutes)
Concept Development	(30 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



Fluency Practice (14 minutes)

- Subtraction with Cards **1.3D, 1.5G** (5 minutes)
- Dime Exchange **1.2A, 1.4A, 1.4C, 1.5A** (4 minutes)
- 10 More **1.5C** (5 minutes)

Subtraction with Cards (5 minutes)

Materials: (S) 1 set of numeral cards 1–10 per pair of students (Lesson 5 Fluency Template)

Note: This fluency activity provides practice with subtraction within 10.

Students sit in pairs. Students shuffle or mix their numeral cards. Each partner places their deck of cards face down. Each partner flips over two cards and subtracts the smaller number from the larger one. The partner with the smallest difference keeps the cards played by both players that round.

For example, Player A draws 4 and 5 and gives the difference of 1. Player B draws 9 and 4 and gives the difference of 5. Since $1 < 5$, Player A keeps the cards. If the differences are equal, the cards are set aside, and the winner of the next round keeps the cards from both rounds. At the end of the game, the players will each be left with 1 card. They each flip their last card over and the player with the highest card says the difference and collects the cards. Students continue to play as time allows.

Dime Exchange (4 minutes)

Materials: (T) 20 pennies and 2 dimes

Note: This activity provides students practice with recognizing pennies and dimes and identifying their values, which is necessary to prepare students to utilize coins as abstract representations of tens and ones.

T: (Lay out 2 dimes.) What coins do you see?

S: 2 dimes.

T: Count by tens to see how much money I have.

S: (Students count aloud.)

T: I want to exchange 1 dime for some pennies. What is the correct number of pennies?

S: 10 pennies.

T: (Replace a dime with 10 pennies in 5-group formation.) How many cents do I have now?

S: 20 cents.

T: You're right! I still have 20 cents. Count backward with me.

S: (Count from 20 cents to 10 cents, removing 1 penny at a time.)

Change the other dime for 10 pennies and have students count from 10 cents to 0 cents.

10 More (5 minutes)

Note: This fluency activity reviews adding 10 to a single-digit number.

T: What's 10 more than 4?

S: 14.

T: Say 14 the Say Ten way.

S: Ten 4.

T: Say it as an addition sentence, starting with 4.

S: 4 + 10 = 14.

T: Say the addition sentence, starting with 10.

S: 10 + 4 = 14.

Repeat, beginning with adding 10 to other numbers between 0 and 9.

Application Problem (6 minutes)

Materials: (S) Personal white board

On Monday, Mr. Moe sharpened 37 pencils. On Tuesday, Mr. Moe sharpened 41 pencils.

a. Make place value drawings to compare the number of pencils sharpened each day.

b. Write a statement comparing the numbers. Use one of the following phrases in your sentence: *greater than*, *less than*, or *equal to*.

NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Providing comparison phrases scaffolds the activity for students who need support comparing the numbers. Language scaffolds such as word banks (or sentence frames) support students in expressing the relationship between the numbers using words.

Note: Using place value drawings to compare two numbers prepares students for today's Concept Development in which they use place value drawings and place value understanding to order sets of three numbers.

Concept Development (30 minutes)

Materials: (S) Place value charts (Template)

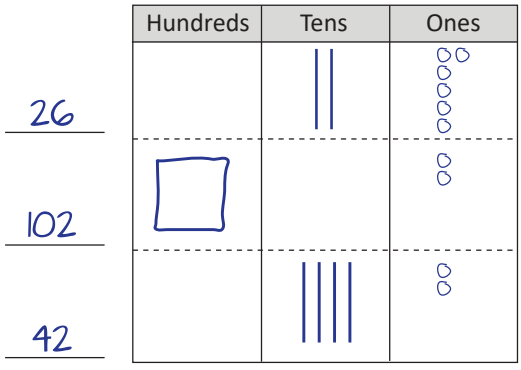
Give each student a copy of the place value charts template so they have two place value charts on their page.

Part 1: Ordering Numbers Using Place Value Drawings

T: I need to buy a pack of pencils for our classroom. The store sells packs of pencils in three different amounts: 26 pencils, 102 pencils, and 42 pencils. I want to put these numbers in order so I know which pack has the most pencils. What tools or strategies can help me order these numbers?

S: Build each number using cubes. → Make place value drawings. → Write the numbers on a place value chart.

T: Wow, there are many ways we can represent numbers to efficiently order them. Let's represent each number by making place value drawings on our place value chart. Point to the place value chart at the top of your paper. Next to the first row, write 26. Then make place value drawings to match this number. Make sure to draw your tens in the tens column and your ones in the ones column.



S: (Write 26 and make place value drawings to match.)

T: Next to the second row, write 102. Then make place value drawings to match. Next to the bottom row, write 42. Then make place value drawings to match.

S: (Write 102 and make place value drawings to match. Write 42 and make place value drawings to match.)

T: Remember, I am trying to order these numbers so I know which pack of pencils has the most. Use your place chart and drawings to order these numbers. Share your thinking with a partner.

S: (Order numbers and discuss with a partner.)

T: When we order the numbers 26, 102, and 42, which number is the smallest?

S: 26. It doesn't have any hundreds, and it only has 2 tens.

T: You started by looking at the biggest place, the hundreds place. Then you looked at the next biggest place, the tens place. 26 is smallest because it doesn't have anything in the hundreds place and it only has 2 tens in the tens place. (Write 26 on the board.) As we order our numbers from least to greatest, which number comes next?

S: 42 because it doesn't have anything in the hundreds place.

T: Yes! We have two numbers left: 102 and 42. You started by looking at the biggest place, the hundreds place. You saw that 42 doesn't have any hundreds, but 102 does. That means 42 is smaller than 102. (Write 42 to the right of 26 on the board.) Now we know 102 is the biggest because it is the only number with a hundred in it. (Write 102 on the board to the right of 42.)

T: If I want to buy the greatest amount of pencils, which pack should I buy?

S: The pack with 102 pencils.

T: If I want to buy the pack with the least amount of pencils, which pack should I buy?

S: The pack with 26 pencils.

Note: As students order numbers, encourage them to use precise mathematical vocabulary (more/most, greater/greatest, less/least, fewer/fewest).

Part 2: Ordering Using Numbers on a Place Value Chart

T: The store also sells boxes of pencil top erasers. The erasers come in boxes of 80, 27, and 112. Let's order these numbers using a different strategy. Instead of making place value drawings on our place value charts, record each number on your charts. Then use your work to order the numbers. You may work with a partner.

S: (Record 80, 27, and 112 on a place value chart.)

T: How does your work help you order the numbers?

S: We can see which numbers have hundreds and which only have tens and ones.

T: When we compare or order numbers, we start with the greatest place. Which is the greatest place on our place value chart?

80

27

112

Hundreds	Tens	Ones
	8	0
	2	7
1	1	2

S: Hundreds place.

T: We have one number with a digit in the hundreds place. What does that tell you?

S: 112 is the biggest number since it's the only one with a digit in the hundreds place.

T: (Draw 3 blank lines on the board: ___, ___, ___.) There are three blank lines on the board. Where would we write 112 if we want to order our numbers from least to greatest?

S: On the last line.

T: Look at the next biggest place, the tens place. 80 has an 8 in the tens place. 27 has a 2 in the tens place. How does that help us order our numbers?

S: 2 tens is less than 8 tens. 27 is less than 80.

T: I have 2 lines left on the board. Where should I write 27 and 80?

S: 27 goes on the first line. 80 goes on the middle line.

T: Great! When comparing or ordering numbers, we can make place value drawings or write the numbers on a place value chart. We always start by comparing the biggest places first. In the numbers we used today, the biggest place was the hundreds place.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted time.

Student Debrief (10 minutes)

Lesson Objective: Order numbers within 120 using place value.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

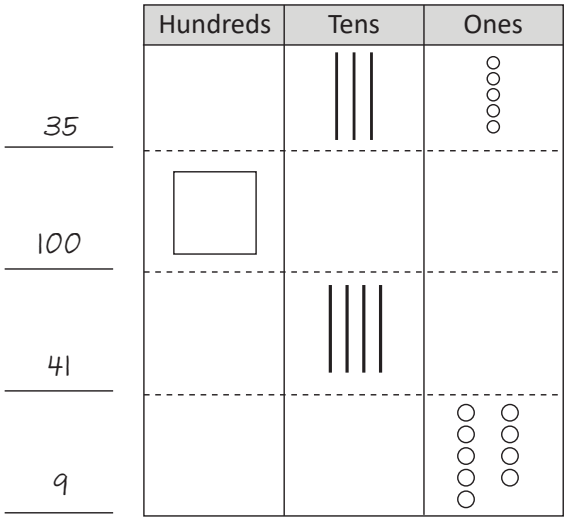
- Do you prefer to order numbers by making place value drawings on your place value chart or by recording the numbers on your place value chart? Why?
- If you were teaching a new student how to order numbers, what tips would you give them?
- Which part of a number do you look at first when ordering numbers?
- Look at Problem ___. Talk to a partner about how you solved the problem. Did you both solve it the same way?
- What is important vocabulary we need to know when comparing or ordering words?

Exit Ticket (5 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

Name _____ Date _____

1. Use the drawings on the place value chart to write the numbers in order from least to greatest.



_____ _____ _____ _____

2. Use place value drawings to represent each number on your place value chart.

	Hundreds	Tens	Ones
51			
35			
113			

Use your place value chart to write the numbers 51, 35, and 113 in order from least to greatest.

_____ _____ _____

3. Kai wrote some numbers on his place value chart. Write Kai's numbers in order from least to greatest.

Hundreds	Tens	Ones
1	1	2
	2	1
1	0	2
	9	9

_____ _____ _____ _____

4. Write each number on the place value chart.

	Hundreds	Tens	Ones
103			
23			
3			
31			

If you write these numbers in order from least to greatest, which number comes after 23? _____

If you write these numbers in order from least to greatest, which number comes before 23? _____

Write the numbers from your place value chart in order from least to greatest.

_____ _____ _____ _____

Name _____ Date _____

1. Make place value drawings to represent each number on the place value chart.

	Hundreds	Tens	Ones
65			
56			
106			

Write the numbers 65, 56, and 106 in order from least to greatest.

_____ _____ _____

2. Write each number on the place value chart.

	Hundreds	Tens	Ones
120			
9			
21			
12			

If you put the numbers 120, 9, 21, and 12 in order from least to greatest, which is first? _____

If you put the numbers 120, 9, 21, and 12 in order from least to greatest, which is last? _____

	Hundreds	Tens	Ones
_____			
_____			
_____			

	Hundreds	Tens	Ones
_____			
_____			
_____			

_____

place value charts

Application Problem

a. 37; draw 3 ten-sticks and 7 circles 41; draw 4 ten-sticks and 1 circle

b. Comparison statements will vary, but may include that 37 is less than 41.

Problem Set

1. 9, 35, 41, 100
2. 51: draw 5 ten-sticks and 1 circle

   35: draw 3 ten-sticks and 5 circles

   113: draw 1 hundred-square, 1 ten-stick, and 3 circles

   35, 51, 113
3. 21, 99, 102, 112
4.

hundreds	tens	ones
1	0	3
	2	3
		3
	3	1

   31

   3

   3, 23, 31, 103

Exit Ticket

1. 65: draw 6 ten-sticks and 5 circles

   56: draw 5 ten-sticks and 6 circles

   106: draw 1 hundred-square and 6 circles

   56, 65, 106
2.

hundreds	tens	ones
1	2	0
		9
	2	1
	1	2

   9

   120

Lesson 14

Objective: Order numbers within 120 using open number lines.

Suggested Lesson Structure

Fluency Practice	(13 minutes)
Application Problem	(6 minutes)
Concept Development	(30 minutes)
Student Debrief	(11 minutes)
Total Time	**(60 minutes)**

Fluency Practice (13 minutes)

- Subtraction Fluency Review **1.3D, 1.5G** (5 minutes)
- Quick Tens **1.2A, 1.2B** (3 minutes)
- 1 More/Less, 10 More/Less **1.2D, 1.5C** (5 minutes)

Subtraction Fluency Review (5 minutes)

Materials: (S) Subtraction fluency review (Fluency Template 1)

Note: This subtraction review sheet contains the majority of subtraction facts within 10 (excluding some – 0 facts and facts with 0 as the difference). Consider having students reuse this sheet over time, and use it to monitor progress toward proficiency.

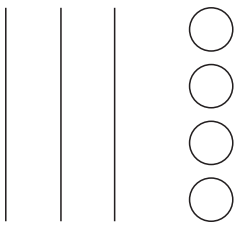
Students complete as many problems as they can in three minutes. Choose a counting sequence for early finishers to practice on the back of their papers. When time runs out, read the answers aloud so students can correct their work.

Quick Tens (3 minutes)

Materials: (T) Variety of manipulatives to show tens and ones (e.g., 100-bead Rekenrek, connecting cubes, place value chart)

Note: This fluency activity reinforces place value because quick tens are an abstract representation of the unit ten.

Use manipulatives to represent the number 34. Students draw the number with quick tens and circles. Then choose different ways for the class to say the number:



34 represented with quick tens

- The Say Ten way (3 ten 4)
- As an addition expression (30 + 4)
- As a *more than* statement (34 is more than ___)
- As a number bond with two parts filled in (30 and 4)

Repeat the activity with other two-digit numbers as time allows.

1 More/Less, 10 More/Less (5 minutes)

Materials: (S) Connecting Cubes (4 ten-sticks, 10 loose cubes), place value chart (Fluency Template 2)

Note: This fluency activity provides practice with proportional representations of tens and ones (connecting cubes). Students review the connection between place value and adding or subtracting ten or one.

T: Show 10. Add 1. Say the addition sentence, starting with 10.

S: 10 + 1 = 11.

T: Add 10. Say the addition sentence, starting with 21.

S: 21 + 10 = 31.

T: Subtract 1. Say the subtraction sentence, starting with 31.

S: 31 – 1 = 30.

T: Show 29. Add 1. Exchange 10 unit cubes for a 10-stick. Then say the addition sentence, starting with 29.

S: 29 + 1 = 30.

Continue adding or subtracting 10 or 1, choosing different start numbers within 40, as appropriate.

Application Problem (6 minutes)

Materials: (S) Ordering players (Application Template)

Distribute one ordering players (Application Template) to each student.

Coach tells the basketball players to get in order using the numbers on their jerseys.

a. Use drawings or numbers to show each jersey number on your place value chart.

b. Write the jersey numbers in order of least to greatest.

In anticipation of today's lesson, this Application Problem reviews ordering numbers by writing numbers and place value drawings on a place value chart.

NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

Giving students a choice to use drawings or numbers on the place value chart allows them to show what they know in a way that makes the most sense to them.

Concept Development (30 minutes)

Materials: (S) Jersey cards (Template) (one card per student), personal white board

Part 1: Ordering Numbers on a Number Line

T: In our Application Problem, the coach wanted the basketball players to get in order using their jersey numbers. What are some strategies we can use to put numbers in order?

S: Build the numbers using place value drawings. → Write the numbers on a place value chart.

T: (Distribute one jersey card (Template) to each student. Ask the students who have numbers 24, 103, 100, and 21 to stand in front of the class with their jerseys.) Order these jersey numbers from least to greatest. You may make place value drawings or write numbers on a place value chart on your personal white board.

S: (Students use place value drawings or numbers on a place value chart to order 21, 24, 100, and 103.)

T: What is the correct order of these students' jerseys?

S: 21, 24, 100, 103.

T: (Move students to the correct order, placing 21 farthest to the left and 103 farthest to the right.) Do you think these students should be equally spaced, or should some of these students stand closer together?

S: I think 21 and 24 should stand close together since their numbers are close. → 24 and 100 should be really far apart. → 100 and 103 should be close together.

T: (Rearrange spacing between students to represent the distance between their numbers.) This reminds me of putting numbers on a number line. How is our line of students similar to numbers on a number line?

S: The smallest number is on the left. → The biggest number is on the right. → Some numbers are close together and some are far apart.

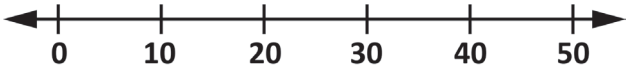
T: We can order numbers by writing them on an open number line. An open number line doesn't have every number starting at 1. We can put any numbers we'd like on an open number line. Draw a number line all the way across your white board. Write 0 on the far left.

T/S: (Draw a blank number line. Record 0 on the far left.)

T: To help us place numbers on the number line, we will record some helper numbers. Helper numbers are usually numbers ending in zero. For the numbers we are about to order, our helper numbers will

be 10, 20, 30, 40, and 50. These numbers should be equally spaced. Watch me, and then record your helper numbers. (Model recording helper numbers on a number line.)

S: (Record 10, 20, 30, 40, and 50 on the number line.)



T: (Have students with the jersey numbers 17, 1, 50, and 32 stand in front of the class.) Look at these students' jersey numbers. We can put their numbers in order by writing them on our number line. Let's do the first number together: 17. Clap once if you think 17 should be placed between 0 and 10 on the number line.

S: (Do not clap.)

T: Clap once if you think 17 should be placed between 10 and 20 on the number line.

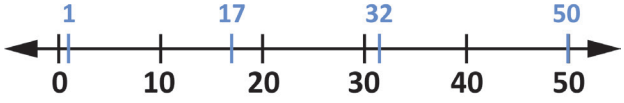
S: (Clap once.)

T: Yes. 17 comes between 10 and 20 on the number line. Is it closer to 10 or 20?

S: 20.

T: Record 17 on your number line, close to 20. Then record the rest of the jersey numbers on your number line. (Support students in using their helper numbers as needed.)

T: As you wrote the jersey numbers on your number line, you placed them in order. Who can read the correct order from least to greatest?



S: 1, 17, 32, 50.

T: Whenever you want to order numbers, you can use a number line. Start by drawing the number line all the way across your board. Look at the numbers you need to order, and decide which helper numbers you will use. Write your helper numbers. Then write the numbers you are recording.

Have students repeat the above activity by ordering jersey numbers 27, 8, 31, and 3. As a class, decide which helper numbers to use (e.g., 0, 10, 20, 30, 40).

Part 2: Group and Order

T: Stand up. Hold your personal white board, marker, and jersey number. When I signal, walk around the room. When I signal again, form groups of four. (Group size may be modified depending on the total number of students.)

S: (Walk around the room. Then get into groups of four.)

T: Each group will work together to order their four numbers. Although you should work together, everyone must write on their own personal white board. Start by drawing an open number line. Decide on your helper numbers and write them on your open number line. Then place the group's jersey numbers on your number line.

After groups order their numbers, have several groups share their work with the class. Confirm their solutions and discuss any tricky moments they may have had. If time allows, have students walk around the room, form new groups, and order their numbers again.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted time.

Student Debrief (11 minutes)

Lesson Objective: Order numbers within 120 using open number lines.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- Look at Problem 1. How do you know your solution is correct? How did the boxes help you know where to place your numbers on the number line?
- Look at Problem 2. Which number did you place first? Why?
- Look at Problem 5. How did you decide which number comes between 17 and 34?
- What is an open number line? How is an open number line a helpful tool?
- What strategies do we know for ordering numbers? Which strategy would you choose to use next time you are asked to order numbers?

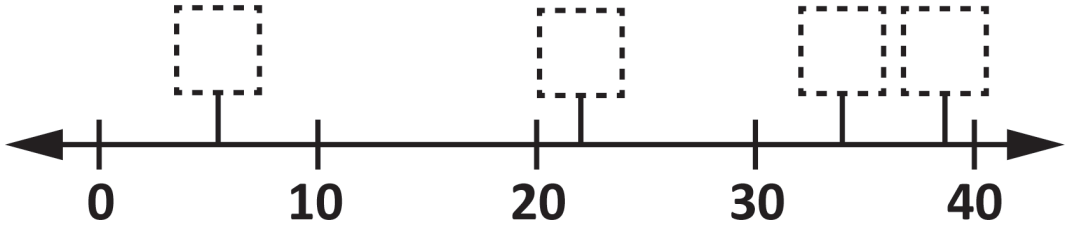
Exit Ticket (5 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

Name _____ Date _____

1. Place the numbers on the number line.
   Use your number line to write the numbers in order from least to greatest.

22	39	7	33



_____ _____ _____ _____

2. Place the numbers on the number line.

30	13	43	4

Use your number line to write the numbers in order from least to greatest.

_____ _____ _____ _____

3. Write the helper numbers 0, 10, 20, 30, 40, 50 on your number line.

Place the numbers on the number line.

41	17	34	26

Use your number line to answer each question.

4. Which number comes first on your number line? (Circle one.)

   41 17 34 26

5. Which number comes between 17 and 34? (Circle one.)

   41 17 34 26

6. Which number comes after 34? (Circle one.)

   41 17 34 26

7. Write the numbers 41, 17, 34, and 26 in order from least to greatest.

   _____ _____ _____ _____

Name _____ Date _____

1. Write the helper numbers 0, 10, 20, 30, 40 on your number line.

Place the numbers on the number line.

19	9	41	25

Use your number line to answer each question.

2. Which number comes first on your number line? (Circle one.)

   19 9 41 25

3. Which number comes between 9 and 25? (Circle one.)

   19 9 41 25

4. Which number comes after 25? (Circle one.)

   19 9 41 25

5. Write the numbers 19, 9, 41, and 25 in order from least to greatest.

   _____ _____ _____ _____

Name _____ Date _____

1.	9 - 4 = _____	16.	8 - 1 = _____	31.	10 - 5 = _____
2.	9 - 5 = _____	17.	8 - 0 = _____	32.	10 - 4 = _____
3.	7 - 4 = _____	18.	6 - 4 = _____	33.	7 - 5 = _____
4.	7 - 3 = _____	19.	6 - 5 = _____	34.	7 - 6 = _____
5.	8 - 5 = _____	20.	10 - 0 = _____	35.	3 - 1 = _____
6.	8 - 4 = _____	21.	10 - 1 = _____	36.	3 - 2 = _____
7.	4 - 3 = _____	22.	7 - 1 = _____	37.	8 - 6 = _____
8.	4 - 2 = _____	23.	7 - 2 = _____	38.	8 - 7 = _____
9.	4 - 1 = _____	24.	5 - 2 = _____	39.	6 - 3 = _____
10.	10 - 2 = _____	25.	5 - 1 = _____	40.	9 - 8 = _____
11.	10 - 3 = _____	26.	2 - 2 = _____	41.	9 - 9 = _____
12.	9 - 7 = _____	27.	2 - 1 = _____	42.	5 - 3 = _____
13.	9 - 6 = _____	28.	2 - 0 = _____	43.	5 - 4 = _____
14.	6 - 1 = _____	29.	8 - 2 = _____	44.	9 - 2 = _____
15.	6 - 2 = _____	30.	8 - 3 = _____	45.	9 - 3 = _____

subtraction fluency review

tens	ones

place value chart

Coach tells the basketball players to line up in order of their jersey numbers.

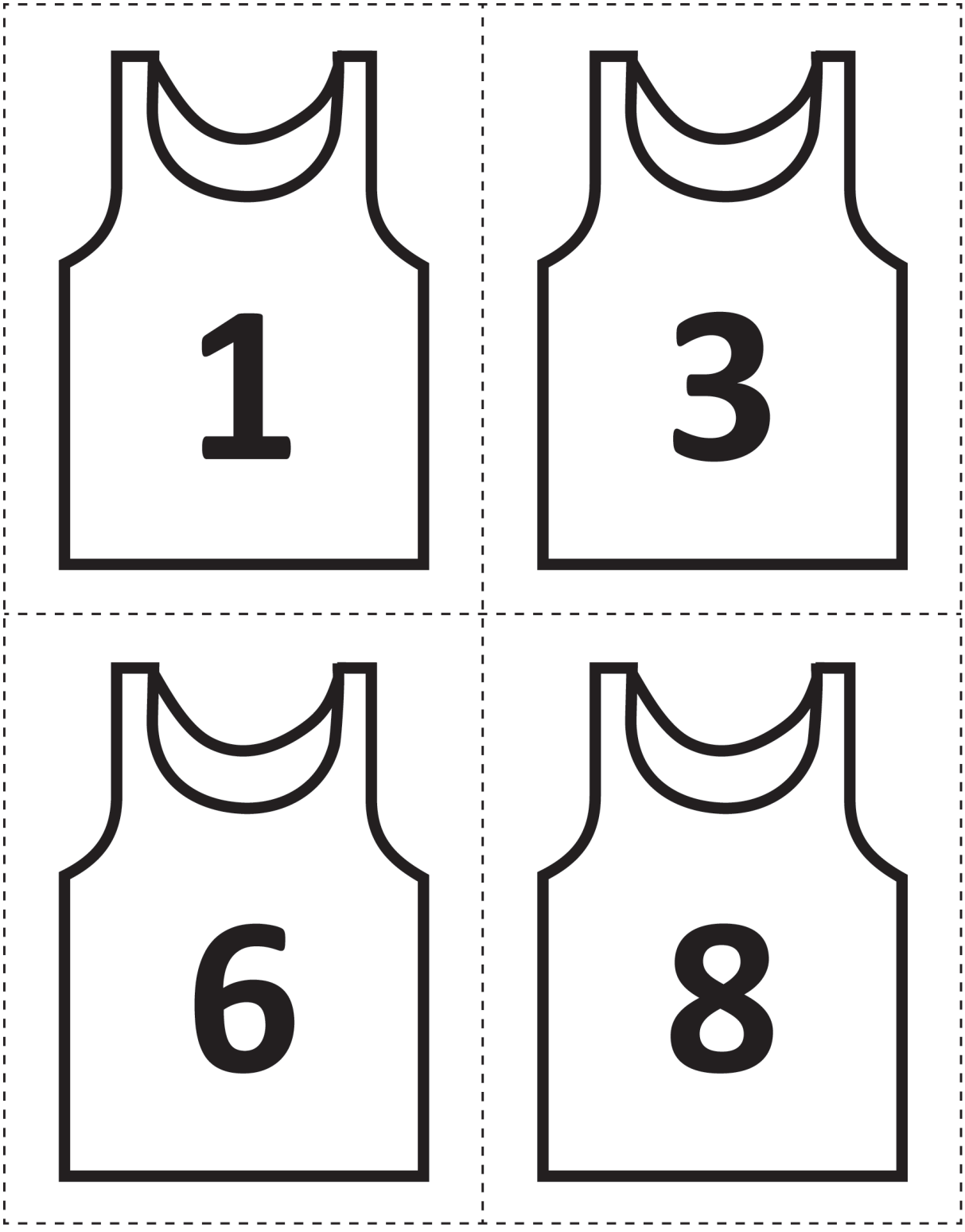
a. Use drawings or numbers to show each jersey number on your place value chart.

	Hundreds	Tens	Ones
_____			
_____			
_____			
_____			
_____			

b. Write the jersey numbers in order of least to greatest.

_____ _____ _____ _____ _____

ordering players



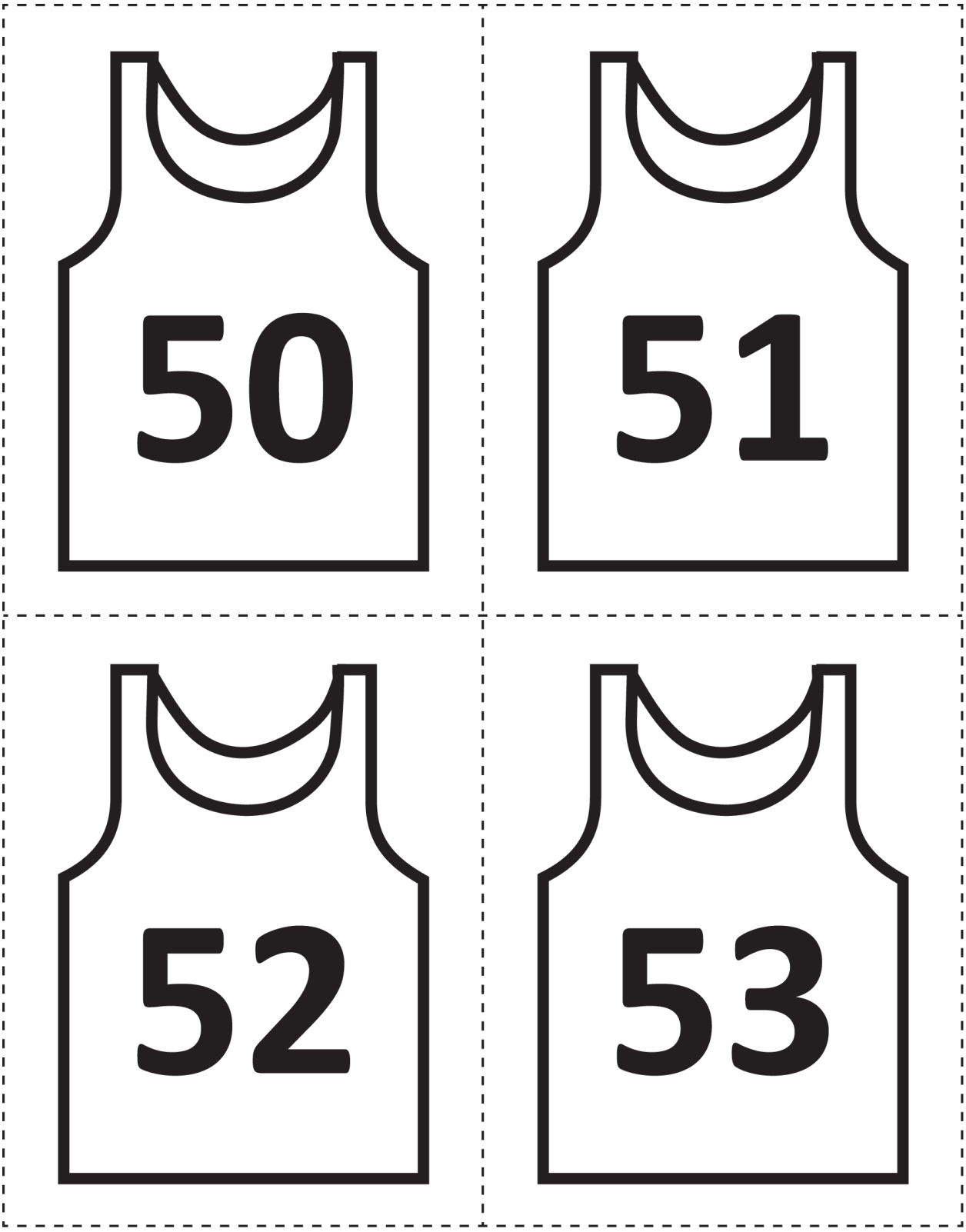
jersey cards Cut and distribute 1 card per student.

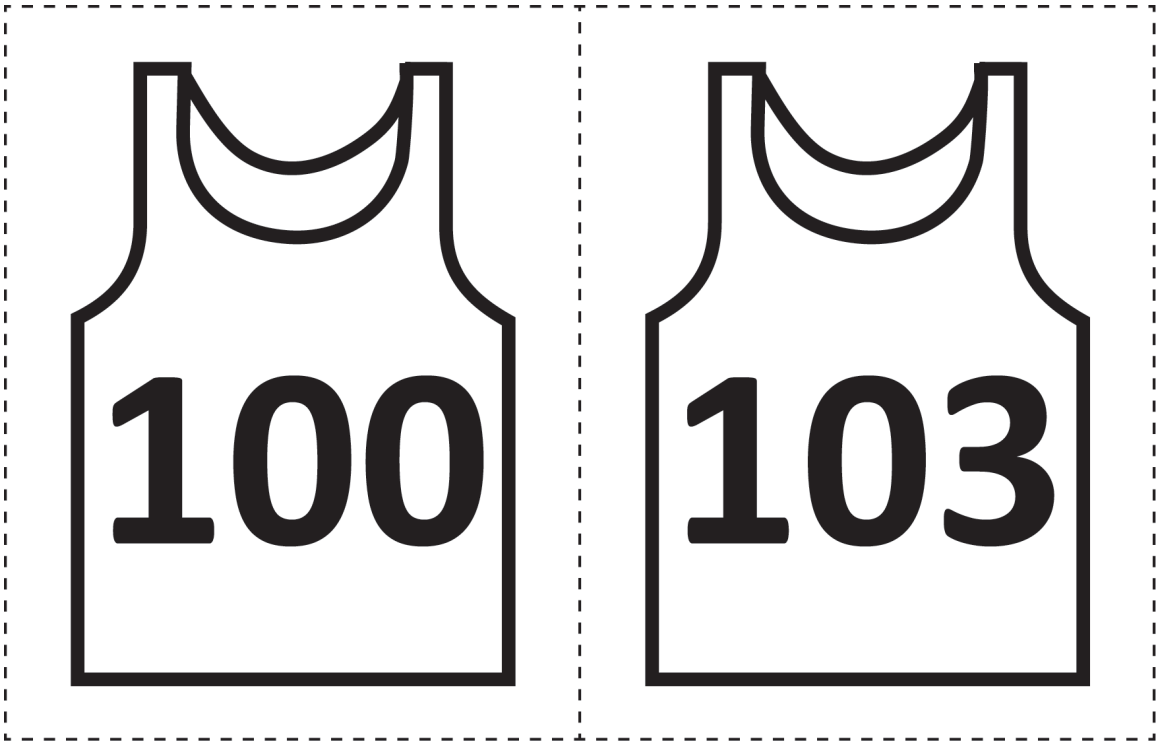

9
11
13
17


21
24
27
31


32
35
37
38


40
44
45
49


50
51
52
53


100
103

Subtraction Fluency Review

1. 5	16. 7	31. 5
2. 4	17. 8	32. 6
3. 3	18. 2	33. 2
4. 4	19. 1	34. 1
5. 3	20. 10	35. 2
6. 4	21. 9	36. 1
7. 1	22. 6	37. 2
8. 2	23. 5	38. 1
9. 3	24. 3	39. 3
10. 8	25. 4	40. 1
11. 7	26. 0	41. 0
12. 2	27. 1	42. 2
13. 3	28. 2	43. 1
14. 5	29. 6	44. 7
15. 4	30. 5	45. 6

Application Problem

a. 15; write 1 ten 5 ones or draw 1 ten-stick and 5 circles 37; write 3 tens 7 ones or draw 3 ten-sticks and 7 circles 21; write 2 tens 1 one or draw 2 ten-sticks and 1 circle 11; write 1 ten 1 one or draw 1 ten-stick and 1 circle 8; write 8 ones or draw 8 circles

b. 8, 11, 15, 21, 37

Problem Set

1. Writes numbers on the number line in the following order: 7, 22, 33, 39
2. Writes numbers on the number line in the following order: 4, 13, 30, 43
3. Writes numbers on the number line in the following order: 17, 26, 34, 41
4. 17
5. 26
6. 41
7. 17, 26, 34, 41

Exit Ticket

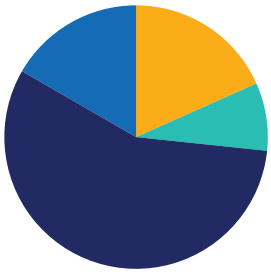
1. Writes numbers on the number line in the following order: 9, 19, 25, 41
2. 9
3. 19
4. 41
5. 9, 19, 25, 41

Lesson 15

Objective: Determine the sum of a multiple of 10 and a one-digit number using concrete models.

Suggested Lesson Structure

Fluency Practice	(11 minutes)
Application Problem	(5 minutes)
Concept Development	(34 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



Fluency Practice (11 minutes)

- Sequence Sets of Numbers **1.2E, 1.2F** (5 minutes)
- Quick Tens **1.2A, 1.2B** (3 minutes)
- Beep Counting by Ones and Tens **1.2D, 1.5C** (3 minutes)

Sequence Sets of Numbers (5 minutes)

Materials: (S) Personal white board

Write sets of four numbers within 40 (e.g., 21, 13, 22, 32). Students write and read the numbers from least to greatest and then from greatest to least. Ask questions such as the following:

- How could you use the words *greater than* or *less than* to compare 21 and 13?
- Which number has the same digit in the tens place and ones place?
- Which two numbers have the same digit in the tens place?
- Which two numbers have the same digit in the ones place?
- Which numbers are less than 23?

Continue with similar questions and different sets of numbers.

Suggested sets: 14, 21, 34, 3; 16, 26, 21, 12; and 33, 13, 31, 3.

Quick Tens (3 minutes)

Materials: (T) Variety of materials to show tens and ones (e.g., 100-bead Rekenrek, connecting cubes with ten-sticks and unit cubes), place value chart (Lesson 14 Fluency Template 2)

Note: This fluency activity reinforces place value because quick tens are an abstract representation of the unit ten. Repeat Quick Tens from Lesson 14 to reinforce place value in preparation for using place value to compare numbers during today's Concept Development.

Beep Counting by Ones and Tens (3 minutes)

Say a series of four numbers, but replace one of the numbers with the word *beep* (e.g., 1, 2, 3, beep). When signaled, students say the number that was replaced by the word *beep* in the sequence. Scaffold number sequences, beginning with simpler sequences and moving to more complex ones. Choose sequences that count forward and backward by ones and tens within 40.

Suggested sequence type: 10, 11, 12, beep; 30, 31, 32, beep; 30, 29, 28, beep; 20, 19, 18, beep; 0, 10, 20, beep; 4, 14, 24, beep; 40, 30, 20, beep; 39, 29, 19, beep. Continue with similar sequences, changing the sequential placement of the beep.

Application Problem (5 minutes)

Darla has 10 stickers on her notebook cover and 5 stickers on her pencil box. How many stickers does Darla have?

Notes:

- Some students may instantly know the total is 15, while others may need to use strategies such as direct modeling or counting on from 10.
- This problem reviews composing a ten and some ones to make a teen number. This review prepares students for today's lesson in which they add multiples of ten to a single-digit number.

Concept Development (34 minutes)

Materials: (T) Hide Zero cards (Lesson 11 Fluency Template 1), number cards (Template)
(S) Bag of connecting cubes (9 ten-sticks, 9 loose cubes), personal white board

Part 1: Adding Tens and Ones

T: Ms. Pierre and her students are collecting pennies to buy new gym equipment. On Monday, the students collect 50 pennies, and Ms. Pierre collects 7 pennies. How could we show the number of pennies the students collect using cubes?

S: Use 5 ten-sticks.

T: Yes, place 5 ten-sticks in front of you. How can we use connecting cubes to show the 7 pennies Ms. Pierre collects?

S: Use 7 loose cubes.

T: Place 7 loose cubes in front of you. How many pennies did Ms. Pierre and her students collect on Monday? Use your cubes to find the total.

S: (Add to get a total of 57.)

T: How did you use your cubes to find the total?

S: I counted 10, 20, 30, 40, 50, 51, 52, 53, 54, 55, 56, 57.

T: One way to find the total is to count our cubes by tens and ones. Let's touch and count our cubes together to see if we get the same amount.

T/S: 10, 20, 30, 40, 50, 51, 52, 53, 54, 55, 56, 57.

T: Another way to find the total is to place your cubes on a place value chart. Draw a place value chart on your personal white board. Place the 5 ten-sticks in the tens place and 7 loose cubes in the ones place. Write 5 in the tens place and 7 in the ones place. That's a total of 57.

T: Next, write a number sentence on your personal white board to match your work.

T: What number sentence did you write?

S: 50 + 7 = 57.

T: Correct, this is one way to write our number sentence. 50 and 7 is the same amount as 57. We could also write 57 = 50 + 7. (Model writing this on the board.) We would read this as *57 is the same amount as 50 + 7*.

T: When we add 50 + 7, what happens to the zero in 50?

S: The 7 covers it up.

T: (Model putting together and taking apart 50 and 7 using the Hide Zero cards. Show the zero being covered by the 7.)

NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Counting aloud together, with the support of cubes, helps students including some emergent bilingual students rehearse the counting sequence while also connecting the count to the place value. In addition, it provides another way for all students to practice counting by tens and ones.

Repeat the above steps with the following problems:

- On Tuesday, Ms. Pierre's students collect 30 pennies. Ms. Pierre collects 5 pennies. How many pennies do they collect in all?
- On Wednesday, Ms. Pierre's students collect 80 pennies. Ms. Pierre collects 9 pennies. How many pennies do they collect in all?

Part 2: Partner Addition

Distribute a number card (Template) to each student. Ensure there are as many students with one-digit number cards as there are with two-digit number cards. If there is an odd number of students, the teacher may act as a player.

T: Stand. If you are holding a one-digit card, carry a bag of cubes with you. If you are holding a two-digit card, carry a personal white board and marker with you. Walk around the room. When I give the signal, find a partner. If you have a one-digit card, find a partner with a two-digit card. (Signal with a clap, snap, or whistle.)

S: (Stand with a partner.)

T: Partners, work together to add your two cards using cubes. Then write a number sentence to match your work.

After partners have finished working, ask a few pairs of students to share their solutions. Remind students of the different ways to write a number sentence (with the sum to the left or right of the equal sign.)

Mix up the number cards, redistribute them, and repeat the activity.

Note: Through varied experiences over time, students will develop fluency adding single-digit numbers to multiples of ten. For now, students may need to solve by direct modeling problems with objects and using counting strategies.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted time.

Student Debrief (10 minutes)

Lesson Objective: Determine the sum of a multiple of 10 and a one-digit number using concrete models.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- How did you find the total for Problem __?
- Look at Problem 7. How is adding 50 and 3 the same as building the number with Hide Zero cards?

- Look at Problem 8. Compare your number sentence to your partner's number sentence. How are they the same or different?
- Look at Problem 9. Is there a different number sentence you could have written?
- Why are cubes a helpful tool?

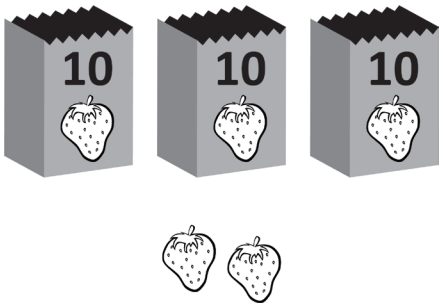
Exit Ticket (5 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

Name _____ Date _____

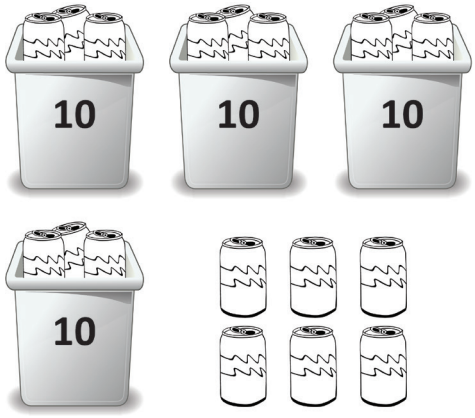
Use cubes to add. Write your answer on the line.

1.



_____ = 30 + 2

2.



40 + 6 = _____

3. _____ = 90 + 2

4. 20 + 7 = _____

5. 50 + 7 = _____

6. _____ = 70 + 5

Use cubes to represent each problem.
Write a number sentence to match your work.

7. Juan has a box of 50 toy cars in a box. He buys 3 toy cars from the store. How many toy cars does Juan have now?

   Number Sentence: _____

8. Marta loves to drink water. Today she drinks 40 ounces of water at school and 8 ounces of water after school. How many ounces of water does Marta drink today?

   Number Sentence: _____

9. Sebastian and Sarah want to buy their dog a bone. Sebastian has 10 dollars. Sarah has 9 dollars. How many dollars do the children have together?

   Number Sentence: _____

Name _____ Date _____

Use cubes to add.
Write your answer on the line.

1.

50 + 4 = _____

2. _____ = 90 + 9

Use cubes to represent each problem.
Write a number sentence to match your work.

3. Julia finds 30 seashells at the beach. Mario finds 3 seashells. How many seashells do they find together?

Number Sentence: _____

0	0	1	1
2	2	3	3
4	4	5	5
6	6	7	7

number cards

Cut apart prior to lesson.

8	9	10
10		20
20		30
30		40

40	50
50	60
60	70
70	80

80	90
90	

Application Problem

15 stickers

Problem Set

1. 32
2. 46
3. 92
4. 27
5. 57
6. 75
7. 53 = 50 + 3 OR 50 + 3 = 53
8. 48 = 40 + 8 OR 40 + 8 = 48
9. 19 = 10 + 9 OR 10 + 9 = 19

Exit Ticket

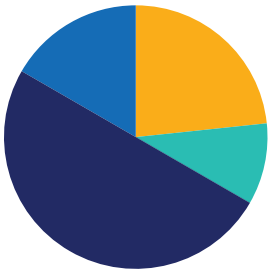
1. 54
2. 99
3. 33 = 30 + 3 OR 30 + 3 = 33

Lesson 16

Objective: Determine the sum of a multiple of 10 and a one-digit number using pictorial models.

Suggested Lesson Structure

Fluency Practice	(14 minutes)
Application Problem	(6 minutes)
Concept Development	(30 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



Fluency Practice (14 minutes)

- 1 More/Less, 10 More/Less **1.2D, 1.5C** (6 minutes)
- Subtraction Fluency Review **1.3D, 1.5G** (5 minutes)
- Beep Counting by Ones and Tens **1.2D, 1.5C** (3 minutes)

1 More/Less, 10 More/Less (6 minutes)

Materials: (S) Connecting cubes (4 ten-sticks, 10 loose cubes), coins (4 dimes, 10 pennies), place value chart (Lesson 14 Fluency Template 2)

Note: This fluency activity provides practice with both proportional (linking cubes) and non-proportional (coins) representations of tens and ones. Students review the connection between place value and adding or subtracting ten or one.

T: Show 10 cubes. Add 1. Say the addition sentence, starting with 10.

S: 10 + 1 = 11.

T: Add 10. Say the addition sentence, starting with 11.

S: 11 + 10 = 21.

T: Subtract 1. Say the subtraction sentence, starting with 21.

S: 21 – 1 = 20.

T: Show 39. Add 1. Say the addition sentence, starting with 39.

S: 39 + 1 = 40.

Continue adding or subtracting 10 or 1, choosing different start numbers within 40, as appropriate. After three minutes, use coins instead of linking cubes. When using coins, be careful not to ask students to subtract 1 from a multiple of 10, as students have not yet learned to subtract by decomposing a dime into 10 pennies.

Subtraction Fluency Review (5 minutes)

Materials: (S) Subtraction Fluency Review (Lesson 14 Fluency Template 1)

As conducted in Lesson 14, students complete as many problems as they can in three minutes. Choose a counting sequence for early finishers to practice on the back of their papers. When time runs out, read the answers aloud so students can correct their work.

Beep Counting by Ones and Tens (3 minutes)

Say a series of four numbers but replace one of the numbers with the word *beep* (e.g., 1, 2, 3, beep). When signaled, students say the number that was replaced by the word *beep* in the sequence. Scaffold number sequences, beginning with simpler sequences and moving to more complex ones. Choose sequences that count forward and backward by ones and tens within 40.

Suggested sequence type: 14, 15, 16, beep; 20, 21, 22, beep; 30, 29, 28, beep; 20, 19, 18, beep; 10, 20, 30, beep; 5, 15, 25, beep; 40, 30, 20, beep; 31, 21, 11, beep. Continue with similar sequences, changing the sequential placement of the beep.

NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Asking students to give the number represented by each beep increases student interest and engagement. As they listen closely to guess the mystery number, they are attending to the forward and backward counting sequence, which will support them in counting within 120.

Application Problem (6 minutes)

Materials: (S) Connecting cubes (9 ten-sticks and 9 loose cubes), personal white board

Jodi draws a picture for her teacher. She draws 20 white flowers and 7 yellow flowers. How many flowers does Jodi draw? Solve using any strategy you choose.

Note: This problem serves as a review from Lesson 15 in which students used cubes to add a single-digit number to a multiple of ten. This sets the foundation for today's lesson in which students use drawings to add a single-digit number to a multiple of ten.

Concept Development (30 minutes)

Materials: (T) Hide Zero cards (Lesson 11 Fluency Template 1)
(S) Personal white board

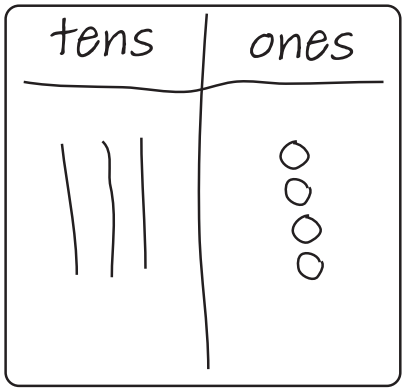
Part 1: Use place value drawings to add tens and ones.

T: Draw a place value chart on your personal white board. Include tens and ones places.

S: (Draw a place value chart.)

T: Jeremy has a pack of gum with 30 pieces in it. He also has 4 single pieces of gum. Make a place value drawing on your place value chart to show Jeremy's gum.

S: (Make place value drawings to show 3 tens and 4 ones.)



T: How many pieces of gum does Jeremy have in all?

S: 34.

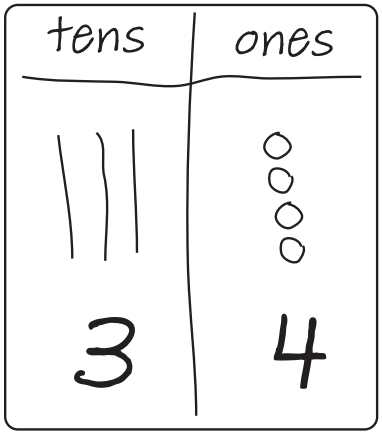
T: How did you use your drawing to find the answer?

S: I skip-counted 10, 20, 30. Then I counted on by ones. 31, 32, 33, 34.

T: Once you draw your pictures, you can count them by tens and ones to find your answer. (Model touching and counting to find the total 34. Ask volunteers to repeat the process. Ensure students smoothly transition from counting by tens to counting on by ones.)

T: Did anyone find their answer a different way?

S: I drew 3 tens, so I wrote 3 in the tens place. I drew 4 ones, so I wrote 4 in the ones place. That's 34!



T: Yes. You can record digits in the tens and ones places to match the number of tens and ones you have. Then you can read the number you wrote. For this problem, I can write 3 in the tens place and 4 in the ones place. That's 34.

T: How can you write a number sentence to match your work?

S: (Write 34 = 30 + 4 OR 30 + 4 = 34.)

T: What happens to the zero in 30 when you add 30 and 4?

S: The zero gets covered by the four.

T: (Reiterate the idea of the zero being covered by the four. Model using Hide Zero cards from Lesson 11 to compose 30 and 4 to make 34).

Repeat the above steps with the following problems:

- Juice boxes are sold individually or in packs of 10. Dominic bought 5 packs of juice boxes and 3 individual juice boxes. How many juice boxes did Dominic buy?
- Margo paid for an apple using 8 dimes and 3 pennies. How much did Margo pay for the apple? (It may be necessary to remind students that a dime is worth 10 cents and a penny is worth one cent.)

Part 2: Use an open number line to add tens and ones.

T: Listen as I read this problem: Trey has 2 ten-packs of markers and 5 extra markers. How many markers does Trey have?

T: Make place value drawings on your personal white board to represent Trey's markers.

S: (Draw 2 ten-sticks and 5 circles.)

T: How many ten-sticks did you draw?

S: 2.

T: How many circles did you draw?

S: 5.

T: How can you find the total number of markers Trey has?

S: Count my drawings by tens and ones. → Write a number to match my drawings: 25.

T: Now let's try another type of drawing we can use to solve this problem. Draw an open number line on your personal white board.

S: (Draw an open number line.)

T: This is an open number line. That means we do not need to write all numbers; we only write numbers that help us solve the problem. Start by writing 0 to show our starting amount.

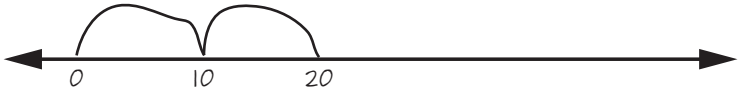
S: (Write 0.)

T: How many ten-packs of markers does Trey have?

S: 2.

T: Draw a big jump to show Trey's first pack of ten. (Model drawing a jump/arch on the number line and write 10 at the end of it.) That's 10 markers. Then draw another big jump to show Trey's second pack of 10. (Model drawing another jump/arch on the number line and write 20 at the end of it.) Now he has 20 markers.

S: (Draw 2 big jumps on the number line. Record 10 and 20 at the end of the jumps.)



T: We drew big jumps to show Trey's 10-packs. Next, we need to draw 5 small jumps to show Trey's 5 extra markers. Watch me. Then you try. (Model drawing 5 small jumps. Below the jumps, label 21, 22, 23, 24, 25.

S: (Draw 5 small jumps on the number line. Record 21, 22, 23, 24, and 25 below the jumps.)

T: Let's go back and count our jumps on our number line. Start counting by tens and then count on by ones.

T/S: (Point to the number line while counting.) 10, 20, 21, 22, 23, 24, 25.

T: How many markers does Trey have in all?

S: 25.

T: Write a number sentence to match your work.

S: (Write 25 = 20 + 5 OR 20 + 5 = 25.)

Repeat the above steps with the following problems:

- Trey has 40 black pens and 7 blue pens. How many pens does Trey have?
- Trey pays for a new ruler using 6 dimes and 2 pennies. How much does Trey's new ruler cost? (It may be necessary to remind students that a dime is worth 10 cents and a penny is worth one cent.)

Note: This lesson uses a variety of representations to support students in adding a single-digit number to a multiple of ten, including place value drawings, number lines, number sentences, and Hide Zero cards. Using multiple representations gives students many varied opportunities to make sense of a concept and deepen their understanding.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted time.

Student Debrief (10 minutes)

Lesson Objective: Determine the sum of a multiple of 10 and a one-digit number using pictorial models.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- How did you solve Problem 1?
- Did you prefer solving Problem 1 or 2? Why?
- Why is a number line a helpful tool for solving problems?
- Is there a different number sentence you could have written to match Problem __?
- Compare your number sentence for Problem __ to your partner's number sentence. Are they the same or different? Are they both correct?
- Over the past two lessons, what are strategies we've learned for adding? (Use place value drawings, draw hops on a number line, build the numbers with cubes.)
- If you were faced with another problem, would you choose to draw a number line or place value drawings? Why?

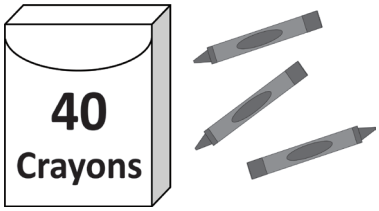
Exit Ticket (5 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

Name _____ Date _____

Make a place value drawing to add.
Write a number sentence to match your work.

1.



Number Sentence: _____

2. There are 50 red flowers and 2 white flowers in a field. How many flowers are in the field?

Number Sentence: _____

3. There are 60 ducks and 8 geese in the pond. How many birds are in the pond?

Number Sentence: _____

Use an open number line to add.

Write a number sentence to match your work.

4.

Number Sentence: _____

5. Nixon spends 30 minutes on math homework and 9 minutes on spelling homework. How many minutes does Nixon spend doing homework?

Number Sentence: _____

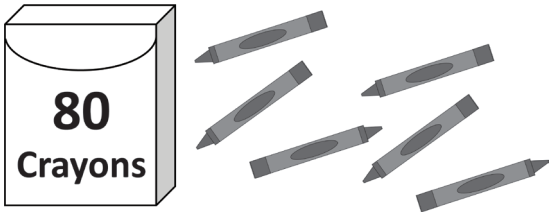
6. Mom makes 50 beef tacos and 3 chicken tacos. How many tacos does Mom make?

Number Sentence: _____

Name _____ Date _____

Make a place value drawing or open number line to add.
Write a number sentence to match your work.

1.



Number Sentence: _____

2. Nora takes 30 pictures of her dog and 4 pictures of her brother. How many pictures does Nora take?

Number Sentence: _____

3. Henry looks in the mailbox. He sees 10 big envelopes and 5 small envelopes. How many envelopes does Henry see?

Number Sentence: _____

Application Problem

Strategies will vary.; 27 flowers

Problem Set

1. Drawing of 4 sticks and 3 circles; 43 = 40 + 3 OR 40 + 3 = 43
2. Drawing of 5 sticks and 2 circles; 52 = 50 + 2 OR 50 + 2 = 52
3. Drawing of 6 sticks and 8 circles; 68 = 60 + 8 OR 60 + 8 = 68
4. Drawing of 7 big jumps and 8 small jumps; 78 = 70 + 8 OR 70 + 8 = 78
5. Drawing of 3 big jumps and 9 small jumps; 39 = 30 + 9 OR 30 + 9 = 39
6. Drawing of 5 big jumps and 3 small jumps; 53 = 50 + 3 OR 50 + 3 = 53

Exit Ticket

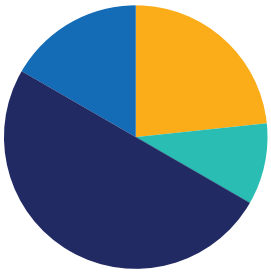
1. Drawing of 8 ten-sticks and 6 circles OR drawing of 8 big jumps and 6 small jumps;
   86 = 80 + 6 OR 80 + 6 = 86
2. Drawing of 3 ten-sticks and 4 circles OR drawing of 3 big jumps and 4 small jumps;
   34 = 30 + 4 OR 30 + 4 = 34
3. Drawing of 1 ten-stick and 5 circles OR drawing of 1 big jump and 5 small jumps;
   15 = 10 + 5 OR 10 + 5 = 15

Lesson 17

Objective: Count by twos to determine the value of a collection of pennies.

Suggested Lesson Structure

Fluency Practice	(14 minutes)
Application Problem	(6 minutes)
Concept Development	(30 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



Fluency Practice (14 minutes)

- Digit Detectives **1.1F, 1.2A, 1.2B** (5 minutes)
- Subtraction Fluency Review **1.3D, 1.5G** (5 minutes)
- Happy Counting by Tens **1.5B** (4 minutes)

Digit Detectives (5 minutes)

Materials: (T/S) Personal white board

Note: This activity reviews the term *digit* and relates it to place value.

The teacher writes a number on a personal white board but keeps it hidden from students.

T: The digit in the tens place is 3. The digit in the ones place is 4. What's my number? (Signal.)

S: 34.

T: What's the value of the 3? (Signal.)

S: 30.

T: What's the value of the 4? (Signal.)

S: 4.

Repeat the sequence with a ones digit of 2 and a tens digit of 7.

T: The digit in the tens place is 1 more than 1. The digit in the ones place is 1 less than 8. What's my number? (Signal.)

S: 27.

T: The digit in the ones place is equal to 7 – 4. The digit in the tens place is equal to 8 – 5. What's my number? (Signal.)

S: 33.

As with the above example, begin with simpler clues and gradually increase the complexity. Give students the option to write the digits on their place value chart as the teacher says the clues.

Subtraction Fluency Review (5 minutes)

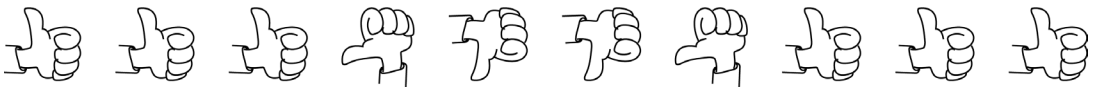
Materials: (S) Subtraction Fluency Review (Lesson 14 Fluency Template 1)

As conducted in Lesson 14, students complete as many problems as they can in three minutes. Choose a counting sequence for early finishers to practice on the back of their papers. When time runs out, read the answers aloud so students can correct their work.

Happy Counting by Tens (4 minutes)

Note: Reviewing Happy Counting by Tens supports students in recognizing the efficiency of counting groups of 10.

T: Today we are going to Happy Count by Tens from 0 to 120. This means I will give you a thumbs-up when you are to count up by tens, a thumbs-down when you are to count down by tens, or a thumb to the side when you are to pause. Let's try:

T: 

T/S: 10 20 30 (pause) 20 10 (pause) 20 30 40

Continue Happy Counting up and down by tens until the class reaches 100. Then, to reinforce place value, Happy Count by Tens the Say Ten way.

Application Problem (6 minutes)

Materials: (S) Ducks in a lake (Application Template)

Distribute ducks in a lake (Application Template).

Imani sees some ducks in the lake, but she can't see their feet. How many duck feet do you think are in the lake? Compare your answer to your partner's answer.

Note: The goal of this problem is to encourage students to notice items that come in pairs. At first, students will likely count each individual foot separately. The teacher may need to challenge students to think in terms of pairs and count by twos. The hundred chart is provided to support students in counting by twos.

Possible questions to ask as students work:

- How many duck feet are in the water?
- How did you find the solution?
- How many feet does each duck have?
- How could you use skip-counting to count the duck feet?
- How might the hundred chart help you skip-count?

Concept Development (30 minutes)

Materials: (T) Hundred chart (Template)
(S) Bag of 34 pennies per pair of students, personal white board

Part 1: Counting by Twos

T: (Distribute bags of coins to partners.) Look at the coins in your bag. What are they called?

S: Pennies.

T: What is the value of a penny?

S: 1 cent.

T: Today we will practice counting cents. Remove the pennies from your bag. With your partner, count to find the total number of cents you have. Record the number on your personal white board.

S: (Partners count pennies.)

T: How many pennies did you count?

S: 34.

T: How many cents is this?

S: 34 cents.

NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Asking students to give tips for counting a set of pennies fosters a community atmosphere by establishing the expectation that helping one another is a normal part of the classroom environment. When students are encouraged to help others, they are more likely to seek help from their classmates when they need it.

T: What tips might you give a friend if they were counting a set of pennies?

S: Put them in a straight line. → Move each penny as you count it. → Put them in groups as you count.

T: There are many ways to organize and count pennies. Some ways are more efficient than others. The word *efficient* can also mean faster. Today we will practice an efficient way to count pennies.

T: (Display the hundred chart (Template).) Before we practice efficiently organizing and counting pennies, let's review skip-counting by twos. Skip-counting by twos means we don't say every number. Instead, we say every second number. As we count by twos, I will circle the numbers we say on our chart. Let's go!

1	(2)	3	(4)	5	(6)	7	(8)	9	(10)
11	(12)	13	(14)	15	(16)	17	(18)	19	(20)
21	(22)	23	(24)	25	(26)	27	(28)	29	(30)
31	(32)	33	(34)	35	(36)	37	(38)	39	(40)
41	(42)	43	(44)	45	(46)	47	(48)	49	(50)
51	(52)	53	(54)	55	(56)	57	(58)	59	(60)
61	(62)	63	(64)	65	(66)	67	(68)	69	(70)
71	(72)	73	(74)	75	(76)	77	(78)	79	(80)
81	(82)	83	(84)	85	(86)	87	(88)	89	(90)
91	(92)	93	(94)	95	(96)	97	(98)	99	(100)

S: (Skip-count by twos.)

T: Pause at 20. Look at the numbers I circled. Talk to your partner about what you notice.

S: We said every other number. → There's a pattern.

T: Let's start at 20 and continue to skip-count by twos. If you need help, use the pattern in our chart. I'll keep circling the numbers we say as we count by twos.

S: (Students skip-count to 100.)

T: Now use your hundred chart from today's Application Problem (Application Template). Practice skip-counting by twos with a partner.

S: (Skip-count by twos with a partner.)

T: When you count pennies, you can put them in groups of twos and then count the groups by twos. (Model taking a set of 20 pennies, grouping them into twos, and counting by twos.) 2, 4, 6, 8, 10, 12, 14, 16, 18, 20. How many pennies did I count?

S: 20.

T: How many cents is this?

S: 20 cents.

T: What was my first step when I counted?

S: You put the pennies in groups of two.

T: What was my second step?

S: You touched each group and skip-counted.

Part 2: Partner Penny Count

T: Again, partners will count to see how many cents you have. This time, start by putting your pennies in groups of two. Then skip-count by twos. Use your hundred chart if you need help counting.

S: (Partners group and count their pennies by twos.)

T: Compare the number of cents you got the first time you counted to the number of cents you got when you skip-counted by twos. Are your numbers the same or different?

S: The same.

T: Yes. An efficient way to count pennies is to put them into groups of two and then count by twos.

T: Right now, everyone skip-counted by twos and counted 34 pennies. Pretend I give every pair of students 1 more penny. How many pennies will everyone have now?

S: 35.

T: We've been counting by twos. Why didn't you say 36?

S: You didn't give us two pennies. You only gave us one extra, so we say the number that comes after 34. It's 35.

T: Yes! In order to skip-count by twos, you must have groups of two.

If time allows, have two sets of partners pair to make a group of four students. Have each group combine their bags of pennies and count by twos to find the total number of cents in this set.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted time.

Student Debrief (10 minutes)

Lesson Objective: Count by twos to determine the value of a collection of pennies.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- Look at Problem 1. What tips do you have for writing the missing numbers on the chart?
- Look at Problem 4. How many cents did you count?
- Look at Problem 5. How many cents did you count? (19) Why were circling groups of twos and counting by twos different for this problem? (There was one left over.)
- Look at Problems 5 and 6. Which problem were you able to solve more efficiently? Why? (Students may say they preferred to circle the pennies in Problem 6 because they were in rows. Or they may say Problem 5 because there were fewer pennies.)
- How did you organize your pennies in Problem 6 so you could efficiently count them?
- What is the value of 1 penny? What is the value of 10 pennies?
- Why is skip-counting an important skill?

Exit Ticket (5 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

Name _____ Date _____

Write the missing numbers as you count by twos.

1.

1		3		5		7		9	
11		13		15		17		19	
21		23		25		27		29	
31		33		35		37		39	

2. 2, 4, _____, 8, 10, 12, _____, 16, 18, 20

3. 60, 62, 64, 66, _____, 70, 72, _____, 76, 78, 80, _____, 84

4.

2 6

10 16

Circle groups of two. Then count by twos.

5.

There are _____ pennies.

That's _____ cents.

6.

There are _____ pennies.

That's _____ cents.

Name _____ Date _____

Write the missing numbers as you count by twos.

1.

61		63		65		67		69	
71		63		75		77		79	

2.

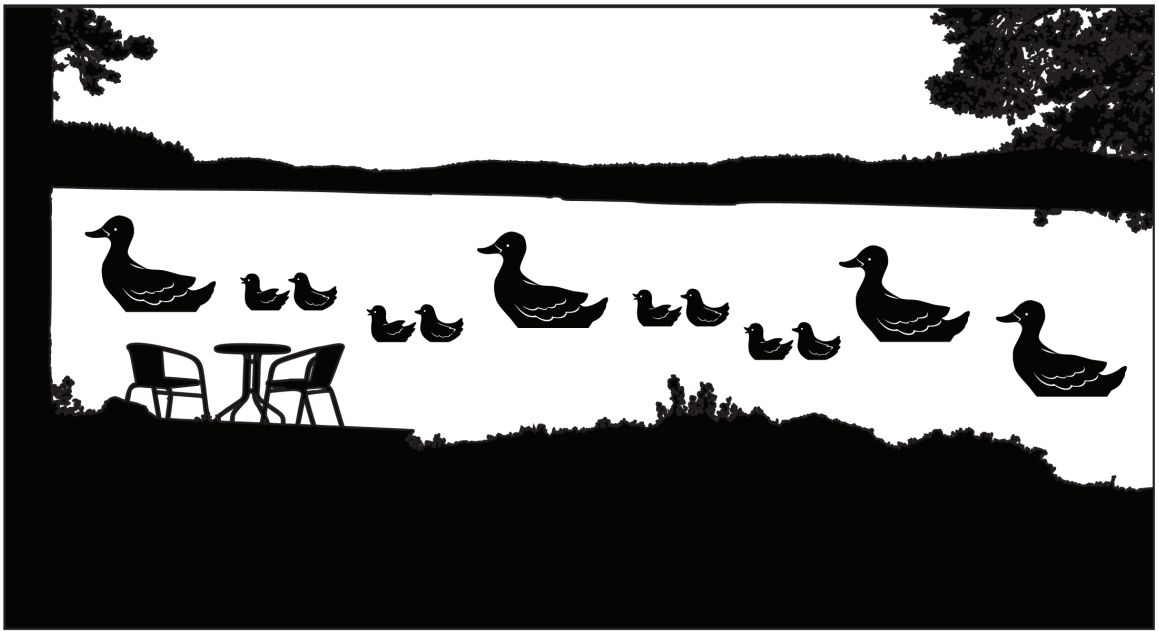
2 4 10

12 14

Circle groups of two. Then count by twos.

3.

There are _____ pennies. That's _____ cents.



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

ducks in a lake

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

hundred chart

Application Problem

12 ducks; 24 duck feet

Problem Set

1. 2, 4, 6, 8, 10
   12, 14, 16, 18, 20
   22, 24, 26, 28, 30
   32, 34, 36, 38, 40
2. 6, 14
3. 68, 74, 82
4. 4, 8
   12, 14
5. 19
6. 30

Exit Ticket

1. 62, 64, 66, 68, 70
   72, 74, 76, 78, 80
2. 6, 8
   16, 18, 20
3. 23

Lesson 18

Objective: Count by fives and tens to determine the value of a collection of pennies, nickels, and/or dimes.

Suggested Lesson Structure

Fluency Practice	(13 minutes)
Application Problem	(6 minutes)
Concept Development	(30 minutes)
Student Debrief	(11 minutes)
Total Time	**(60 minutes)**

Fluency Practice (13 minutes)

- Digit Detectives **1.2B** (5 minutes)
- Count by Twos, Fives, and Tens **1.5B** (5 minutes)
- Add and Subtract Tens within 40 **1.5C, 1.5F, 1.5G** (3 minutes)

Digit Detectives (5 minutes)

Materials: (T/S) Personal white board

Note: This fluency activity was a teacher-directed activity in the previous lesson. Today students conduct this activity in pairs. Once the activity is complete, they use comparison symbols (<, >, and =) to compare their numbers.

Students work in pairs. Each student writes a number from 0 to 40 on their place value chart but hides it from their partner. Partner A gives clues about their hidden number to Partner B. Clues may include:

- My number is greater than ___.
- My number is less than ___.
- The digit in the tens place is ___.
- The digit in the ones place is ___.

After Partner B correctly guesses Partner A's numbers, roles are reversed and the activity is repeated. Once both hidden numbers have been guessed, each partner records an inequality comparing their two numbers. Inequalities may be different (e.g., 14 < 37 and 37 > 14).

Count by Twos, Fives, and Tens (5 minutes)

Materials: (S) 120 linking cubes per pair

Distribute sets of 120 linking cubes to pairs of students. Ask for some pairs of students to count by twos to find the total, some to count by fives, and some to count by tens. When pairs of students are done counting, ask the class to compare their totals, which should all be 120.

Add and Subtract Tens within 40 (3 minutes)

Materials: (S) Personal white board

Note: This fluency activity strengthens students' understanding of the relationship between addition and subtraction while providing practice with adding and subtracting multiples of 10.

Write two related addition and subtraction sentences using 0–4 tens in unit form. For example:

- 4 tens − 3 tens = ___ ten(s)
- 3 tens + ___ ten(s) = 4 tens

Students convert the number sentences to numeral form and solve. Example:

- 40 − 30 = 10
- 30 + 10 = 40

Application Problem (6 minutes)

Materials: (S) Fingers in mittens (Application Template)

Distribute fingers in mittens (Application Template).

Kenna's family wears mittens to keep their fingers warm. How many mittens do you see? How many fingers do you think are inside these mittens if there are 5 fingers in each mitten? Compare your answer to your partner's answer.

Note: The goal of this problem is to think of items in terms of groups of five or ten. At first, students will likely count each individual finger separately (by touching/counting each mitten 5 times.) The teacher may need to challenge students to think in terms of groups. The hundred chart is provided to support students in skip-counting by fives or tens.

Possible questions to ask as students work:

- How many fingers are in the mittens?
- How did you find the solution?
- How many fingers are usually on one hand? (5)
- How many fingers does a person usually have? (10)
- How can we use skip-counting to find the number of fingers? (Count by fives or tens.)
- How might the hundred chart help you skip-count?

Concept Development (30 minutes)

Materials: (T) 2 copies of hundred chart (Lesson 17 Template)
(S) Bag of 15 nickels and 10 dimes per pair of students, personal white board

Part 1: Counting by Fives and Tens

T: Today we will use skip-counting by fives and tens to find the values of sets of coins. Before we count our coins, let's practice skip-counting.

T: (Display a hundred chart.) Skip-counting by fives means we don't say every number. Instead, we say every fifth number. As we count by fives, I will circle the numbers we say on our chart. Let's go!

S: (Skip-count by fives.)

1	2	3	4	(5)	6	7	8	9	(10)
11	12	13	14	(15)	16	17	18	19	(20)
21	22	23	24	(25)	26	27	28	29	(30)
31	32	33	34	(35)	36	37	38	39	(40)
41	42	43	44	(45)	46	47	48	49	(50)
51	52	53	54	(55)	56	57	58	59	(60)
61	62	63	64	(65)	66	67	68	69	(70)
71	72	73	74	(75)	76	77	78	79	(80)
81	82	83	84	(85)	86	87	88	89	(90)
91	92	93	94	(95)	96	97	98	99	(100)

T: Pause at 20. Look at the numbers I circled. Talk to your partner about what you notice.

S: The numbers we said always end with 5 or 0. → There's a pattern.

T: Do you think this pattern will continue?

S: Yes.

T: Let's start at 20 and continue to skip-count by fives. I'll keep circling the numbers we say as we count by fives.

S: (Students skip-count to 100.)

T: Did the pattern continue?

S: Yes.

T: What is the pattern?

S: We only said numbers in 2 columns. → We only said numbers that end with 5 or 0.

1	2	3	4	5	6	7	8	9	(10)
11	12	13	14	15	16	17	18	19	(20)
21	22	23	24	25	26	27	28	29	(30)
31	32	33	34	35	36	37	38	39	(40)
41	42	43	44	45	46	47	48	49	(50)
51	52	53	54	55	56	57	58	59	(60)
61	62	63	64	65	66	67	68	69	(70)
71	72	73	74	75	76	77	78	79	(80)
81	82	83	84	85	86	87	88	89	(90)
91	92	93	94	95	96	97	98	99	(100)

T: Now use your hundred chart from today's Application Problem. Practice skip-counting by fives with a partner. If you get stuck, think about the pattern.

S: (Skip-count by fives with a partner.)

T: Next, let's practice skip-counting by tens. (Display a new hundred chart.) Skip-counting by tens means we don't say every number. Instead, we say every tenth number. As we count by tens, I will circle the numbers we say on our chart. Let's go!

S: (Skip-count by tens to 100.)

T: Look at the numbers I circled. What do you notice?

S: We only said numbers that end in zero. → We said some of the numbers we said when we counted by fives.

T: Use your hundred chart from today's Application Problem again. Practice skip-counting by tens with a partner. If you get stuck, use the pattern we noticed.

Part 2: Counting Nickels and Dimes

T: (Distribute bags of coins to partners.) Work with a partner to sort your coins into two groups.

S: (Sort coins with a partner.)

T: How did you sort your coins?

S: Big coins and small coins. → Nickels and dimes.

T: What are the big coins called?

S: Nickels.

T: What is the value of a nickel?

S: 5 cents.

T: What are the small coins called?

S: Dimes.

T: What is the value of a dime?

S: 10 cents.

T: Draw a line down the middle of your white board. Write *nickels* on one side and *dimes* on the other side. Then place your coins on the matching side.

T: You and your partner have two jobs. First, skip-count to find the value of your set of nickels. What will you skip-count by?

S: Fives.

T: Yes. A nickel is worth 5 cents, so you will skip-count by fives. Your second job is to find the value of your set of dimes. What will you skip-count by?

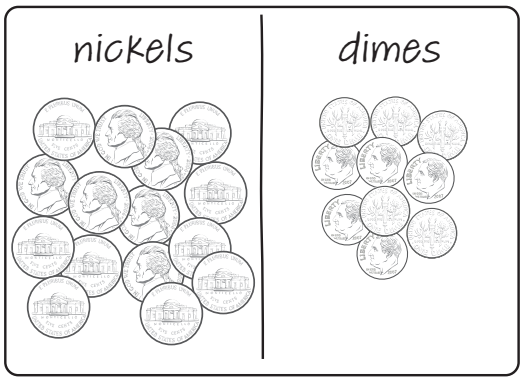
S: Tens.

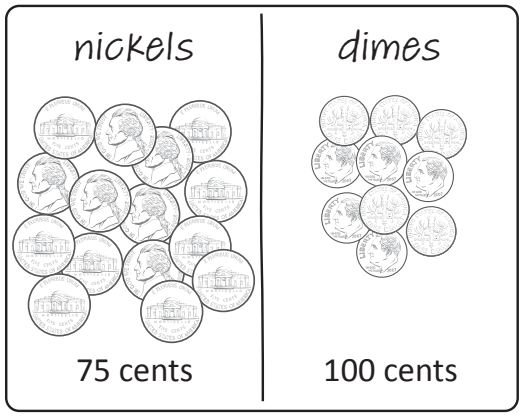
T: Yes. A dime is worth 10 cents, so you will skip-count by tens. Use your hundred chart if you need help skip-counting. Then write your solutions on your personal white board.

S: (Count nickels by fives and record the total cents. Count dimes by tens and record the total cents.)

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Counting patterns can be an abstract concept for many students. Circling numbers on a hundred chart during the count translates an auditory pattern into a visual one and provides an alternative way of "seeing" the skip-counting pattern.





T: Today you skip-counted your nickels by fives because each nickel is worth five cents. You skip-counted your dimes by tens because each dime is worth ten cents. When you want to find the value of a set of coins, you can use skip-counting.

For additional practice, partners can take turns challenging each other to count a set of dimes or nickels: Partner A hands Partner B a small handful of dimes (or nickels). Partner B skip-counts to find the value. Partners switch roles and repeat.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted time.

Student Debrief (11 minutes)

Lesson Objective: Count by fives and tens to determine the value of a collection of pennies, nickels, and/or dimes.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- Look at Problem 1. What tips do you have for writing the missing numbers on the chart?
- Look at Problem 2. How did you find the missing numbers?
- Did you prefer to find the missing numbers for Problem 3 or Problem 4? Why?
- Look at Problems 6 and 7. Which problem were you able to solve more efficiently? Why? (Students may say it was more efficient to skip-count Problem 7 because the nickels are in a straight row.)
- Look at Problems 8 and 9. Which problem were you able to solve more efficiently? Why? (Students may say that they chose to skip-count Problem 9 because the dimes are in a straight row.)
- Why do we use skip-counting to find the value of nickels and dimes?
- What is the value of 1 nickel? What is the value of 1 dime?

Exit Ticket (5 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

Name _____ Date _____

Write the missing numbers on the chart.

1.

1	2	3	4		6	7	8	9	
11	12	13	14		16	17	18	19	
21	22	23	24		26	27	28	29	
31	32	33	34		36	37	38	39	
41	42	43	44		46	47	48	49	
51	52	53	54		56	57	58	59	

Write the missing numbers as you count by fives.

2. 5, 10, _____, 20, 25, 30, _____, _____, 45, _____

3. 5, _____, 15, 20, _____, _____, 35, 40, _____, _____

Write the missing numbers as you count by tens.

4. 10, 20, _____, 40, 50, _____, 70, _____, 90, 100

5. 10, _____, 30, _____, 50, _____, 70, 80, _____, _____

Count by fives or tens to find the total cents.

6.

I counted _____ cents.

7.

I counted _____ cents.

8.

I counted _____ cents.

9.

I counted _____ cents.

Name _____ Date _____

Write the missing numbers as you count by fives.

1. 5, 10, _____, 20, 25, 30, _____, _____, 45, _____

Write the missing numbers as you count by tens.

2. 10, 20, _____, 40, 50, _____, 70, _____, 90, 100

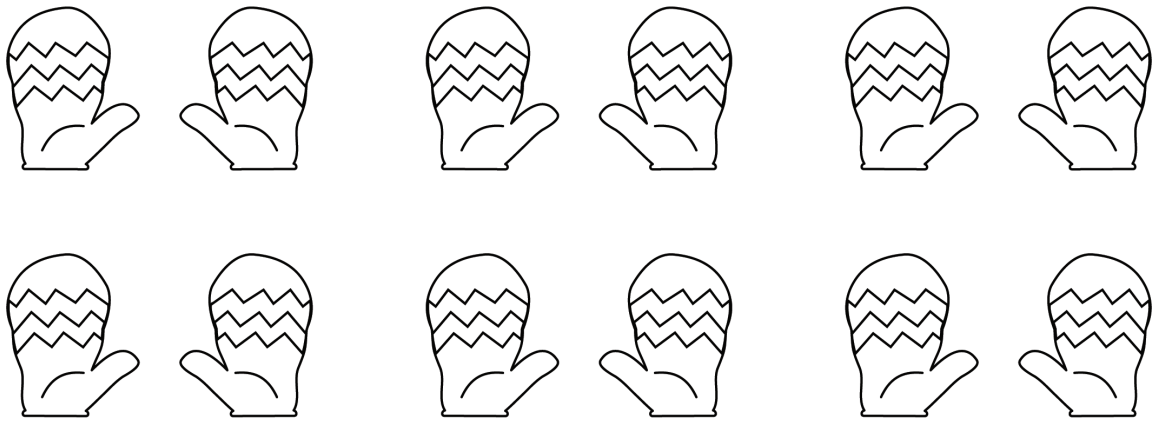
Count by fives or tens to find the total cents.

3.

I counted _____ cents.

4.

I counted _____ cents.



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

fingers in mittens

Application Problem

12 mittens; 60 fingers

Problem Set

1. 5, 10
   15, 20
   25, 30
   35, 40
   45, 50
   55, 60
2. 15, 35, 40, 50
3. 10, 25, 30, 45, 50
4. 30, 60, 80
5. 20, 40, 60, 90, 100
6. 80
7. 35
8. 100
9. 50

Exit Ticket

1. 15, 35, 40, 50
2. 30, 60, 80
3. 65
4. 70

Topic C

Geometry and Measurement

1.6A, 1.7A, 1.7E

Focus Grade Level Standards

Geometry and Measurement

The student applies mathematical process standards to analyze attributes of two-dimensional shapes and three-dimensional solids to develop generalizations about their properties. The student is expected to:

1.6A classify and sort regular and irregular two-dimensional shapes based on attributes using informal geometric language.

Geometry and Measurement

The student applies mathematical process standards to select and use units to describe length and time. The student is expected to:

1.7A use measuring tools to measure the length of objects to reinforce the continuous nature of linear measurement;

1.7E tell time to the hour and half hour using analog and digital clocks.

Foundational Standards

The student is expected to:

K.2C count a set of objects up to at least 20 and demonstrate that the last number said tells the number of objects in the set regardless of their arrangement or order;

K.6A identify two-dimensional shapes, including circles, triangles, rectangles, and squares as special rectangles;

K.6D identify attributes of two-dimensional shapes using informal and formal geometric language interchangeably;

K.6E classify and sort a variety of regular and irregular two- and three-dimensional figures regardless of orientation or size;

K.7A give an example of a measurable attribute of a given object, including length, capacity, and weight;

1.5A recite numbers forward and backward from any given number between 1 and 120;

1.6B distinguish between attributes that define a two-dimensional or three-dimensional figure and attributes that do not define the shape;

1.6D identify two-dimensional shapes, including circles, triangles, rectangles, and squares, as special rectangles, rhombuses, and hexagons and describe their attributes using formal geometric language;

1.6H identify examples and non-examples of halves and fourths;

1.7B illustrate that the length of an object is the number of same size units of length that, when laid end-to-end with no gaps or overlaps, reach from one end of the object to the other;

1.7D describe a length to the nearest whole unit using a number and a unit.

Coherence

Module Connections

TEKS:	**1.6A**	Module 5: Identifying, Composing, and Partitioning Shapes
	1.7A	Module 3: Ordering and Comparing Length Measurements as Numbers
	1.7E	Module 5: Identifying, Composing, and Partitioning Shapes
Instructional Days:	7	

During Topics A and B, students focused on number concepts including problem solving involving addition and subtraction and place value within 120. With Topic C, the focus transitions to geometry and measurement. Explorations in Topic C include shapes in Lessons 19–20, length measurement in Lessons 21–22, and time in Lessons 23–25.

In Lessons 19–20, students classify and sort regular and irregular two-dimensional shapes using informal geometric language **(1.6A)**. For example, when students sort regular triangles, squares, and circles in Lesson 19, they may refer to the triangles as having three corners, while the circles have no corners.

Next, in Lessons 21–22, students measure the length of objects to reinforce the continuous nature of linear measurement **(1.7A)**. The measuring tools used in these lessons are non-standard, such as ribbon, string, and paper strips. The goal is for students to recognize that the length of an object can be measured end-to-end using a measuring tool. When the measuring tool is not long enough, it can be extended (e.g., by unrolling additional string or adding an additional paper strip). When measuring the linear measurement around the outside of an object (e.g., the perimeter of a picture frame), students recognize the tool may continue around the angles of the object in order to measure the entire length.

In Lessons 23–25, students tell time to the hour and half hour using analog and digital clocks **(1.7E)**. They recognize the parts of analog and digital clocks that identify the hour and minutes, tell time to the hour and half hour on analog and digital clocks, and generate activities from their daily lives to match times provided on clocks. As students relate time to their own world and lived experiences, they understand the relevance of being able to tell time.

A Teaching Sequence Toward Proficiency in Geomertry and Measurement	
Objective 1:	**Classify and sort regular and irregular two-dimensional shapes based on attributes using informal geometric language.** **(Lessons 19–20)**
Objective 2:	**Measure the length of objects to reinforce the continuous nature of linear measurement.** **(Lessons 21–22)**
Objective 3:	**Tell time to the hour and half hour using analog and digital clocks.** **(Lessons 23–25)**

Terminology

Familiar Terms and Symbols

The Additional Days School Year (ADSY) lessons are supplemental to the core instructional materials. As such, no new academic vocabulary has been introduced. Continue to use academic language that was introduced during core instruction so students can develop precision in their use of mathematical language. For a list of terms and symbols relevant to Topic C, see the *Familiar Terms and Symbols* sections in module overviews for Modules 3 and 5.

Suggested Tools and Representations

The list below includes tools needed to teach the lessons, and representations that appear in the topic. Note that common classroom staples such as personal white boards, dry erase markers and erasers, scissors, paper, construction paper, chart paper, crayons, markers, pencils, paper clips, glue, clear tape, and masking tape are not included in the list. Printable materials that are included with the lessons, such as templates, are also not included in the list.

- 20-bead Rekenrek (Slavonic abacus having beads with a color change at the five)
- Analog time
- Can or opaque container
- Clock with gears (teacher and students)
- Coins (pennies and dimes)

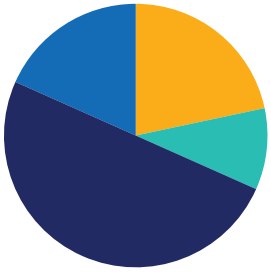
- Connecting or linking cubes
- Counters
- Cube towers
- Dice
- Digital time
- Document camera
- Equations
- Expressions
- Finger formations
- Geoboards and bands
- Number bonds
- Number sentences
- String
- Strip diagrams
- Two-dimensional shapes (hexagons, rectangles, rhombuses, squares, and triangles)
- Word form (time)

Lesson 19

Objective: Classify and sort regular two-dimensional shapes based on attributes using informal geometric language.

Suggested Lesson Structure

Fluency Practice	(13 minutes)
Application Problem	(6 minutes)
Concept Development	(30 minutes)
Student Debrief	(11 minutes)
Total Time	**(60 minutes)**

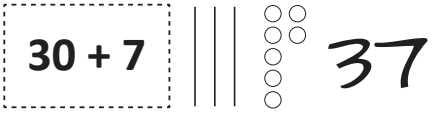


Fluency Practice (13 minutes)

- Adding with Cards **1.2E, 1.5C** (4 minutes)
- Race and Roll Addition **1.3D** (5 minutes)
- Dime Exchange **1.2A, 1.4A, 1.4C, 1.5A** (4 minutes)

Adding with Cards (4 minutes)

Materials: (T) Addition cards (Fluency Template)
(S) Personal white board



Note: This fluency activity reviews adding a multiple of ten and a single-digit number within 99.

Display an addition card. On their personal white boards, students make a quick ten drawing to represent the addends shown on the card. Then students record the total. When the teacher gives a signal, all students hold up their personal white boards to reveal their solution.

Race and Roll Addition (5 minutes)

Materials: (S) 1 die for each pair of students

Note: In this fluency activity, students practice adding within 20. The competitive nature of Race and Roll Addition promotes students' engagement while increasing their ability to retain information (since the partners are trying to stand quickly).

All students start at 0. Partners take turns rolling a die, saying an addition number sentence, and adding the number rolled to the total they already have. For example, Partner A rolls 6 and says, "0 + 6 = 6," then Partner B rolls 3 and says, "6 + 3 = 9." They continue rapidly rolling and saying number sentences until they get to 20, without going over.

Partners stand when they reach 20. For example, if the partners are at 18 and roll 5, they take turns rolling until one of them rolls a 2 or rolls 1 twice, and then both stand.

Dime Exchange (4 minutes)

Materials: (T) 20 pennies and 2 dimes

Note: This activity reviews recognizing pennies and dimes and identifying their values.

T: (Lay out 2 dimes.) What coins do you see?

S: 2 dimes.

T: Count by tens to see how much money I have.

S: (Students count aloud.)

T: I want to exchange 1 dime for some pennies. What is the correct number of pennies?

S: 10 pennies.

T: (Replace a dime with 10 pennies in 5-group formation.) How many cents do I have now?

S: 20 cents.

T: You're right! I still have 20 cents. Count backward with me.

S: (Count from 20 cents to 10 cents, removing 1 penny at a time.)

Change the other dime for a penny, and students count from 10 cents to 0 cents.

Application Problem (6 minutes)

Materials: (S) Shapes in the neighborhood (Application Template)

Notes: Students will work in pairs. The partner on the left will be Partner A. Each pair will need a copy of shapes in the neighborhood (Application Template).

T: Shapes are all around us: in our classroom, at the park, and in our neighborhoods. Look closely at the picture. Partner A, tell the name of a shape in the picture to your partner. Partner B, look to see if you can find a similar shape in the classroom. Then switch roles. Ready? Go! (Continue until partners have named all the shapes they recognize in the picture.)

S: (Take turns naming shapes and identifying similar shapes in the classroom.)

Concept Development (30 minutes)

Materials: (T) Triangle and square pattern blocks
(S) Shapes in the neighborhood (Application Template), shape cutouts (Template 1), group labels (Template 2)

Notes: The focus of today's Concept Development is on regular shapes in all orientations. These are shapes constructed from equal sides and equal angles. Accordingly, rectangles, and rhombuses will not be included.

Prior to the lesson, cut out the shapes on shape cutouts (Template 1) so there is one shape for each student. Cut out the group labels (Template 2). Students will work in pairs.

Part 1: Guess my shape.

T: Listen as I give a clue about a shape in the picture from the Application Problem. Once you know the shape I am describing, touch it with your finger. Ready? (As you give each clue, write a simplified version of it on the board as a reference for students.)

- The shape I'm thinking of has 3 straight sides. (Write *3 straight sides.*)
- My shape has 3 corners. (Write *3 corners*.)
- The corners of my shape all look the same. (Write *Corners are the same*.)
- All of the sides of my shape are the same length. (Write *Equal sides*.)

S: (Point to a triangle.)

T: Explain to your partner why the shape you touched matches the shape I'm thinking of. You can use the clues written on the board to help you.

S: (Justify their shape choice by referencing the clues given.)

T: (Leave the clues for the triangle on the board.) Let's try another one. Once you know the shape I am describing, touch it with your finger. Ready? (As you give each clue, write a simplified version of it on the board, next to the clues for the triangle, as a reference for students.)

- The shape I'm thinking of has 4 straight sides. (Write *4 straight sides*.)
- My shape has 4 corners. (Write *4 corners*.)
- The corners of my shape all look the same. (Write *Corners are the same*.)
- All of the sides of my shape are the same length. (Write *Equal sides*.)

S: (Point to a square.)

T: Explain to your partner why the shape you touched matches the shape I'm thinking of. Use the clues written on the board in your explanation.

S: (Justify their shape choice by referencing the clues given.)

T: (Display the triangle and square pattern blocks.) How are these two pattern block shapes similar? (Accept a variety of responses, but listen for students who say both shapes have equal angles and sides. If needed, ask, "What do you notice about all of the corners on the triangle (square)? What do you notice about all of the sides on the triangle (square)?")

S: All the corners on the triangle look the same, and all the corners on the square look alike. → The sides of the triangle are all the same length. The sides of the square are the same length, too.

T: (Circle the clues for both shapes that define them as regular shapes.) The green pattern block triangles in our class set have 3 equal sides. Can a triangle ever have sides of different lengths?

Triangle	Square
• 3 straight sides	• 4 straight sides
• 3 corners	• 4 corners
• Corners are the same	• Corners are the same
• Equal sides	• Equal sides

S: Yes.

T: The orange pattern block squares in our class have 4 equal sides. Can a square ever have sides of different lengths?

S: No. → They have to be the same, or it's not a square.

Part 2: Sort the shapes.

T: (Distribute one of the shapes you prepared to each student.) Each of you has a shape. Stand up and walk around the room. When I say stop, find someone who has the same shape as you do. Ready?

S: (Students find a partner who has the same shape.)

T: With your partner, sit in a circle in the discussion area.

S: (Students sit in a circle in the discussion area.)

T: (Select a pair of triangles and place them together in the discussion area.) What is the name of these shapes?

S: Triangles.

T: (Place the *triangle* label (Template 2) above the triangles.) If you and your partner also have triangles, place them with these triangles.

S: (Place additional triangles.)

T: Are all of these triangles exactly the same or are they different?

S: They are different.

T: How are the triangles different?

S: They are different sizes. → Some of them are turned in different ways. → The colors are not the same.

T: How are they similar?

S: They all have 3 sides and 3 corners. → All of the sides on each triangle are the same length. → Each triangle's corners look the same. → It looks like someone took a triangle and stretched it out bigger or made it smaller.

T: (Place the *square* and *hexagon* labels (Template 2) next to the group of triangles.) Place your shape under the shape name.

S: (Students place remaining shapes in appropriate groups.)

T: How are these squares alike?

S: They all have 4 sides and 4 corners. → All of the sides on each square are the same length. → Each square's corners look like the corner of a piece of paper. Let me show you. (Place the corner of the Neighborhood Shapes paper in each of the four corners of a square.)

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Seeing multiple examples of the same shape in different sizes, colors, and orientations helps students look past non-defining attributes to better understand the defining attributes that classify a shape.

T: How are the hexagons all alike?

S: All the hexagons have 6 sides and 6 corners. → The sides on each hexagon are the same. → The corners look the same on each hexagon.

T: Turn and talk to your partner: Describe one of the groups without using the name of the shape. See if your partner can guess your group of shapes.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted time.

Student Debrief (11 minutes)

Lesson Objective: Classify and sort regular two-dimensional shapes based on attributes using informal geometric language.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

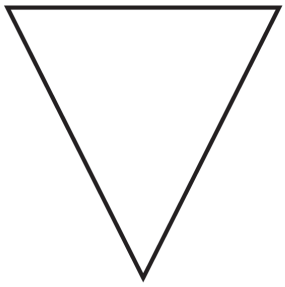
- How did the Application Problem connect to today's lesson?
- What new (or significant) math vocabulary did we use today to communicate precisely?
- On your personal white board, write an answer to the following question: How did you know the names of each shape for Problem 1? Then, share your answer with a partner.
- What do you look for in a triangle?
- Name a shape with 4 sides.
- What is the name of a shape with 6 sides?
- Look at Problem 2. How many shapes do you have in the squares group? Triangles group? Hexagons group? Did you have the same number of any shape? Does your partner have the same number of shapes in each group?

Exit Ticket (5 minutes)

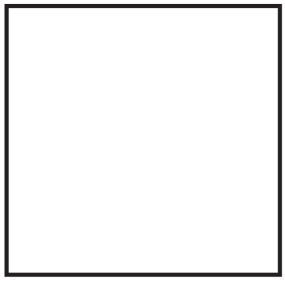
After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

Name _____ Date _____

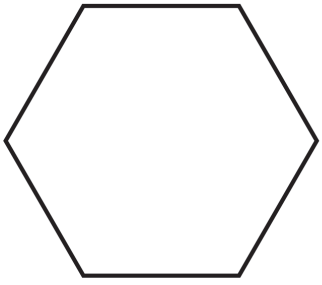
1. Draw a line from the shape to its shape name.



hexagon



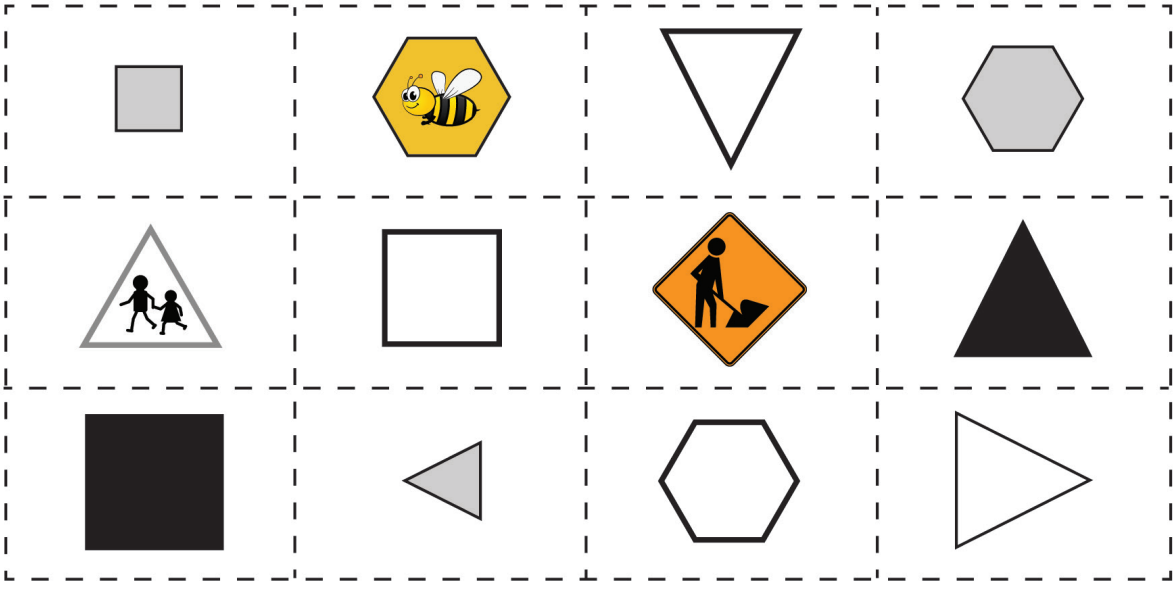
triangle



square

2. Cut out the shapes and paste them into the correct box.

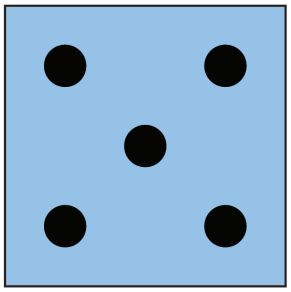
triangles	squares	hexagons



Name _____ Date _____

1. Draw a line from the shape to its shape name.

hexagon



triangle

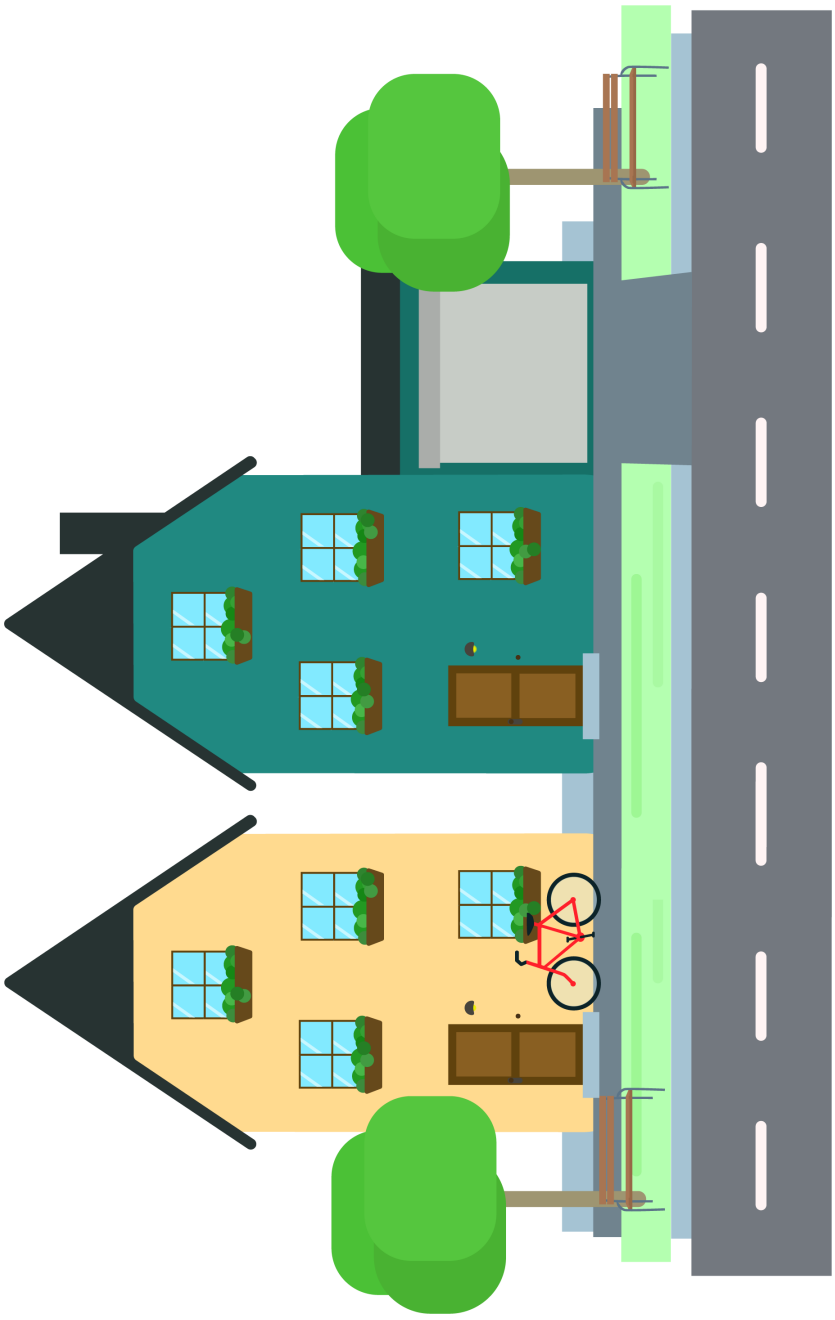
square

2. Look at your shape cutouts from today's lesson. Find two examples of hexagons, triangles, and squares. Place them next to their shape name on the Exit Ticket.

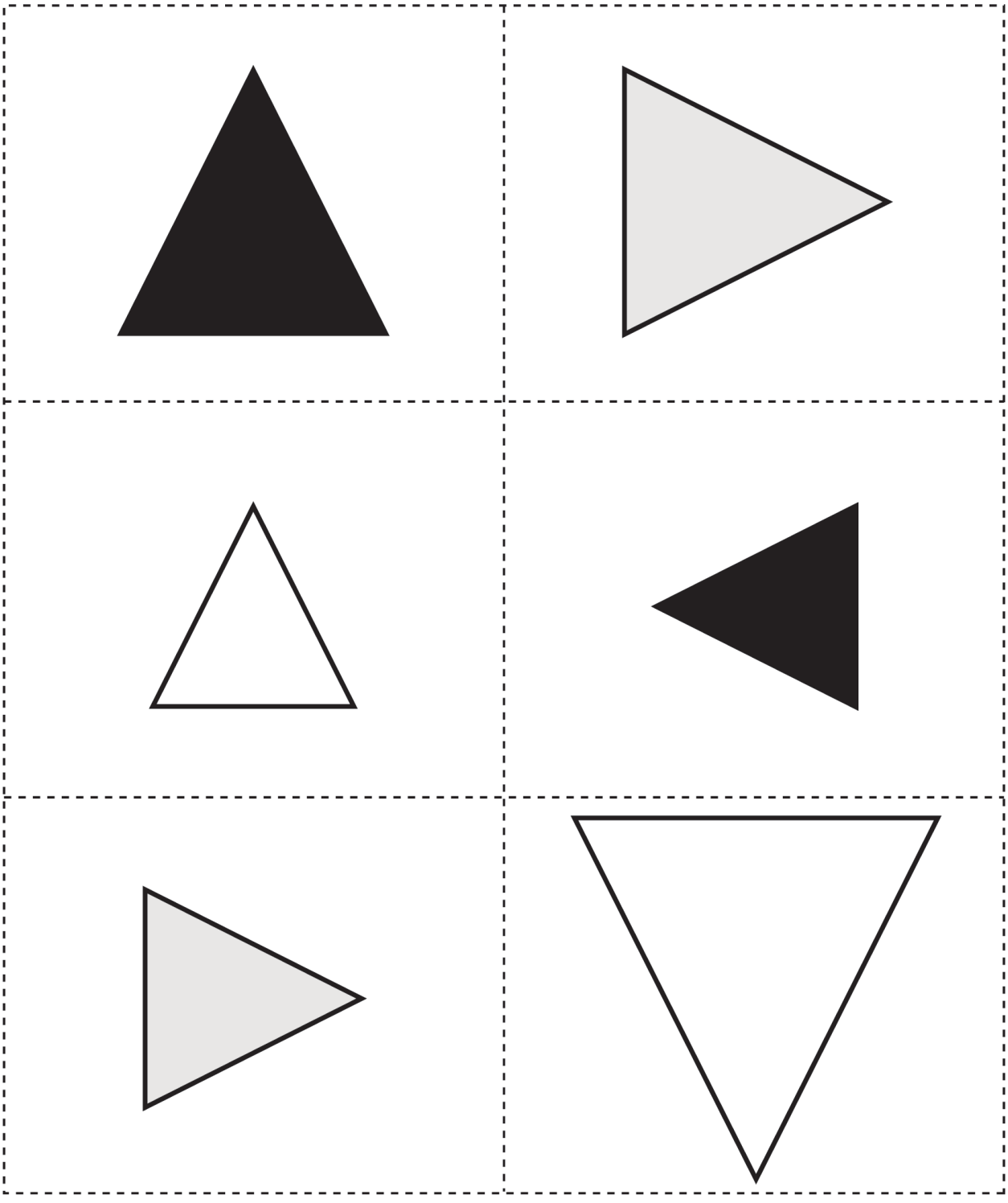
10 + 2	10 + 4
20 + 7	20 + 9
30 + 3	30 + 5
40 + 6	40 + 8

addition cards

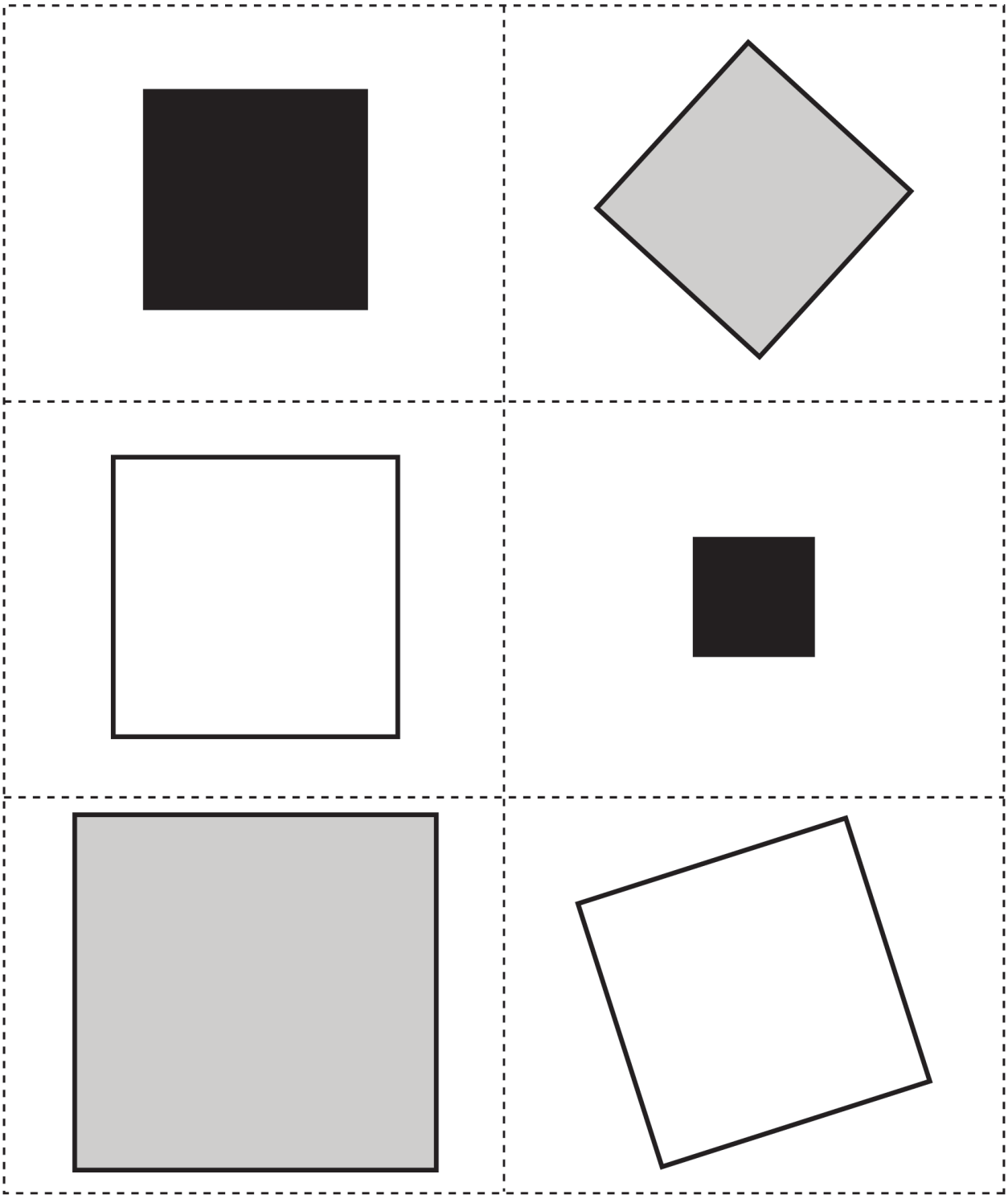
50 + 2	50 + 4
60 + 7	60 + 9
70 + 3	70 + 5
80 + 6	80 + 8

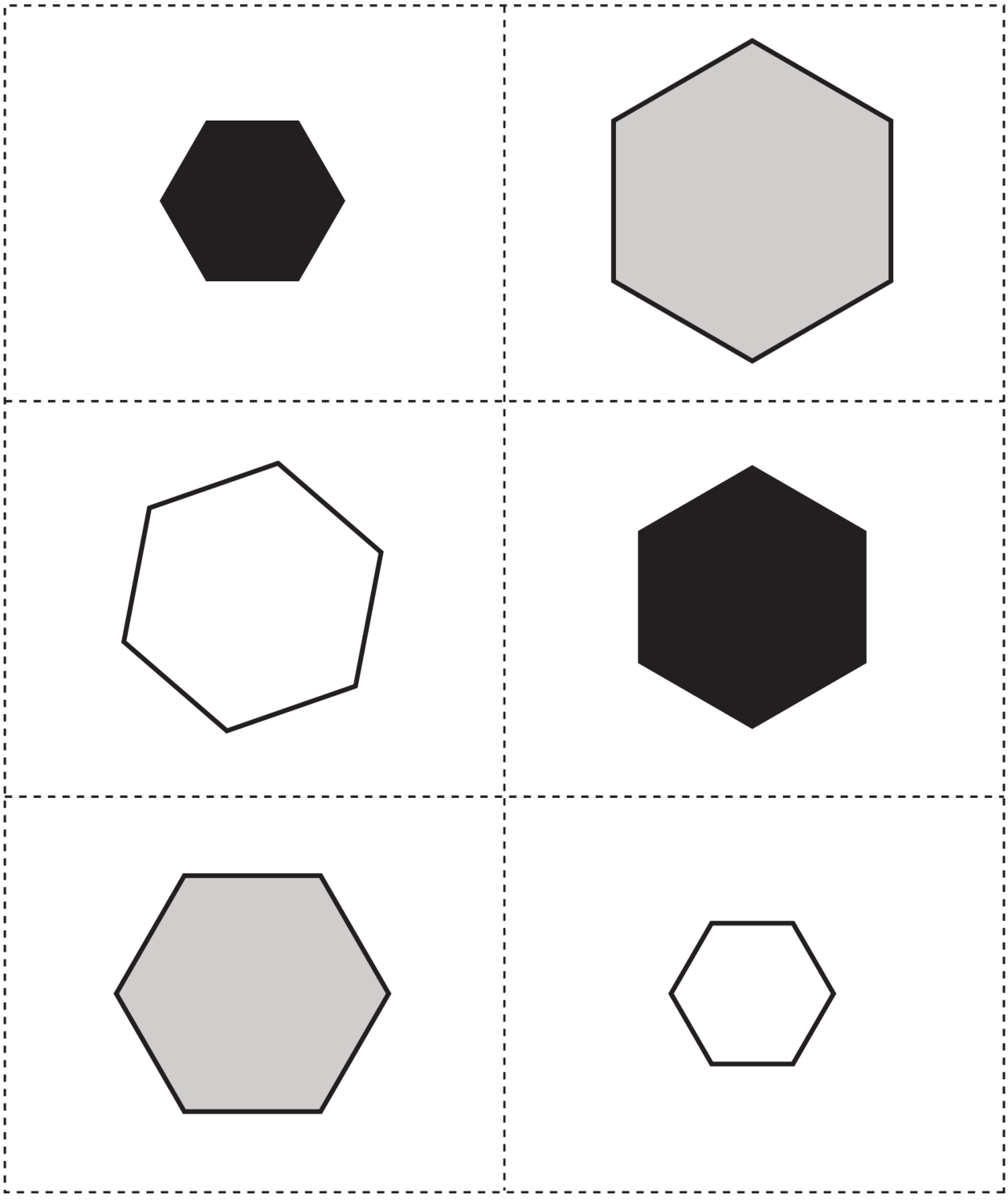


shapes in the neighborhood



shape cutouts





triangle

hexagon

square

group labels

Application Problem

Shapes named in the picture and identified in the classroom will vary, but the shapes names in the picture should match the shapes identified in the classroom.

Problem Set

Shapes from top to bottom:

- Triangle
- Square
- Hexagon

Shapes pasted in the correct column.

- There should be five triangles pasted in column 1, four squares pasted in column 2, and three hexagons pasted in column 3.

Exit Ticket

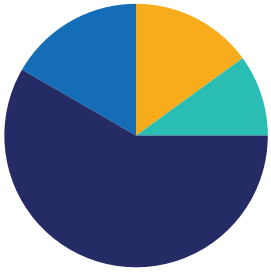
1. Shapes from top to bottom:
   - Triangle
   - Square
   - Hexagon
2. Place shapes cards displaying hexagons, triangles, and squares next to their corresponding shape on the Exit Ticket.

Lesson 20

Objective: Classify and sort irregular two-dimensional shapes based on attributes using informal geometric language.

Suggested Lesson Structure

Fluency Practice	(9 minutes)
Application Problem	(6 minutes)
Concept Development	(35 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



Fluency Practice (9 minutes)

- Get to 10 **1.3A** (3 minutes)
- Take Out 1 or 10 **1.2D, 1.5C** (2 minutes)
- Number Bond Addition and Subtraction **1.2C, 1.3D, 1.5G** (4 minutes)

Get to 10 (3 minutes)

Materials: (T) Rekenrek

Note: In this fluency activity, students apply their knowledge of partners to ten to find analogous partners to 20.

T: (Show 6.) Say the number.
S: 6.
T: Give me the number sentence to make ten.
S: 6 + 4 = 10.
T: (Move 4 beads to make 10. Then show 16.)
T: Say the number.
S: 16.
T: Give me the number sentence to make 20.
S: 16 + 4 = 20.

As time allows, repeat the activity with 5 and 15, 8 and 18, and 7 and 17.

Take Out 1 or 10 (2 minutes)

Note: This activity reviews place value.

Choose numbers between 10 and 20 and follow the steps below.

T: Say 17 the Say Ten way.

S: Ten 7.

T: Take out 1.

S: Ten 6.

Repeat for 26 and 35. Then take out 10 from 14, 24, and 34.

Number Bond Addition and Subtraction (4 minutes)

Materials: (S) Personal white board

Note: This fluency activity reviews adding and subtracting within 10.

Write a number bond for a number between 0 and 10 with a missing part or whole. Next, students write two addition and two subtraction sentences with a line for the missing number in each equation. Then they solve for the missing number.

4 + 3 = 7 7 - 4 = 3

3 + 4 = 7 7 - 3 = 4

Application Problem (6 minutes)

Materials: (S) Shapes at the fair (Application Template)

Notes: Students will work in pairs. The partner on the right will be Partner A. Each pair will need a copy of shapes at the fair (Application Template).

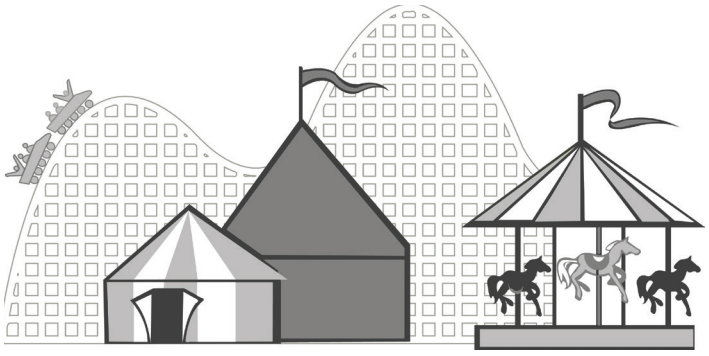
Some children were playing I Spy at the local fair. One child said, “I spy a black rectangle.” What might this child have seen? Another child said, “I spy a white square.” What might this child have seen?

Now it’s your turn! Play I Spy with a partner. Tell your partner the shape and color of what you spy.

Concept Development (35 minutes)

Materials: (T) Piece of yarn, in and out shape cards (Template)
(S) Geoboards and bands

Note: The focus of today's Concept Development is on irregular shapes in all orientations. These are shapes constructed from unequal side lengths and/or unequal angles.



Use the yarn to create a circle in the discussion area. Pre-cut the in and out shape cards (Template) and place them near the yarn circle.

Part 1: In or Out

Note: In this activity, students try to guess the rule for a shape to be in the circle (regular shapes: equal side lengths and angles) in contrast to irregular shapes (unequal side lengths and angles). A suggested order for placing the shapes is included below. Place each shape silently, one at a time, giving students time to think about what the rule might be before sharing it with a partner. Before placing each new shape, have students show a thumbs-up if they think it goes in the circle and a thumbs-down if they think it goes outside the circle. Do not confirm guesses until after the activity is complete and all shapes have been placed.

T: Today we are going to play a game called In or Out. (Point to the yarn circle.) I am going to place some shapes in the circle and some shapes out of the circle. You will try to guess the rule for the shapes that are in the circle. Ready? (Place Shape A out of the circle and Shape B in the circle.) Think: What could the rule be for shapes in the circle? (Pause.) Talk to your partner: What might the rule be for a shape to be in the circle?

S: (Discuss. Possible response: Triangles go in the circle. Rectangles go out of the circle.)

T: (Hold up Shape C.) Show a thumbs-up if you think it goes in the circle and a thumbs-down if you think it goes outside the circle.

S: (Show thumbs-up or thumbs-down.)

T: Talk to your partner: Why do you think it goes in or out of the circle?

S: (Discuss. Possible response: It's a triangle, so it's in.)

T: (Place Shape C outside of the circle without confirming if students' guesses about the rule are correct or incorrect. Then hold up Shape D.) Show a thumbs-up if you think it goes in the circle and a thumbs-down if you think it goes outside the circle.

S: (Show thumbs-up or thumbs-down.)

T: Talk to your partner: Why do you think it goes in or out of the circle?

S: (Discuss. Possible response: It's white, so it goes in the circle.)

T: (Place Shape D in the circle. Then hold up Shape E.) Show a thumbs-up if you think it goes in the circle and a thumbs-down if you think it goes outside the circle.

S: (Show thumbs-up or thumbs-down.)

T: Talk to your partner: Why do you think it goes in or out of the circle?

S: (Discuss. Possible response: It's white, so it has to go in the circle with the other white shapes.)

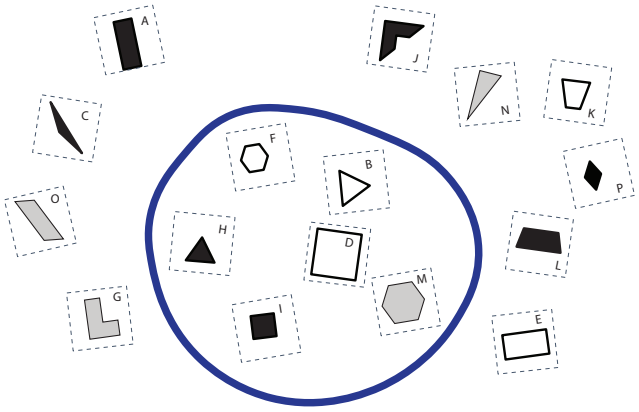
T: (Place Shape E outside of the circle.)

Repeat with remaining shapes in this order: F (in), G (out), H (in), I (in), J (out), K (out), L (out), M (in), N (out), O (out), and P (out).

T: Now we have placed all of our shapes in or out of the circle. What is the rule for placing shapes in the circle?

S: For a shape to go in the circle all its sides have to be the same length. → The corners of the shape all have to look alike.

T: Yes! The rule for being in the circle is that the shape must have equal sides and corners.



Note: If students claim Shape P should be in the circle since all of its sides are the same length, draw their attention to the corners and say, "In order for a shape to go in the circle, all the corners must be the same. Are the corners of this shape all the same?" (Since the angles are not equal, rhombuses can never be "regular" shapes, even if their side lengths are the same.)

Part 2: Irregular Shapes

T: (Sort the shapes inside the circle by type: triangles, hexagons, and squares. Then point to the group of triangles in the circle.) What is the name of these shapes that have 3 sides and 3 square corners?

S: Triangles.

T: (Place Shapes C and N together outside of the circle, to the left of the triangles in the circle.) What is the name of shapes C and N?

S: Triangles.

T: Turn and talk to your neighbor: How are these triangles like the triangles in the circle? How are they different?

S: (Discuss. Responses will vary, but will likely include that the triangles outside the circle have sides of different lengths and corners that do not look alike.)

T: (Point to the group of hexagons in the circle.) What is the name of these shapes that have 6 sides and 6 square corners?

S: Hexagons.

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Pointing to the shapes being discussed supports students, including some emergent bilingual students by providing a visual example in conjunction with the shape name.

T: (Place Shapes G and J together outside of the circle, to the left of the hexagons in the circle.) What is the name of Shapes G and J?

S: Hexagons.

T: How do you know?

S: They have 6 sides and 6 corners.

T: Turn and talk to your neighbor: How are these hexagons like the hexagons inside the circle? How are they different?

S: (Discuss. Responses will vary, but will likely include that the hexagons outside the circle have sides of different lengths and corners that do not look alike.)

T: (Point to the group of squares inside the circle.) What is the name of these shapes that have 4 sides and 4 square corners?

S: Squares.

T: (Place Shapes A and E together outside of the circle, to the left of the squares in the circle.) What is the name of Shapes A and E?

S: Rectangles.

T: Rectangles have 4 sides and 4 square corners. Turn and talk to your neighbor: How are they different from the squares?

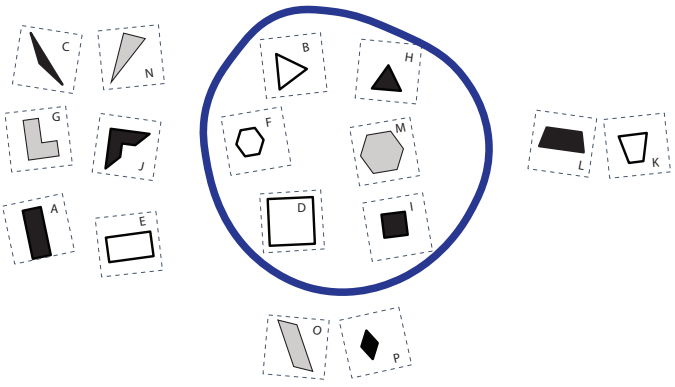
S: (Discuss. Responses will vary, but will likely include that the sides of rectangles are not all the same length or that there are 2 short sides and 2 long sides.)

T: (Place Shapes L and K together outside of the circle, to the right of the squares in the circle.) What do you notice about Shapes L and K?

S: They look like one of our pattern blocks. → They have 4 sides and 4 corners.

T: Turn and talk to your neighbor: How are these shapes different from the squares?

S: (Discuss. Responses will vary, but will likely include that Shapes L and K have two short sides and 2 long sides and that unlike the squares and rectangles, the sides slant in opposite directions.)



T: (Place Shapes O and P together outside of the circle, below the squares in the circle.) What is the name of Shapes O and P?

S: Rhombuses. → Those are also like the pattern blocks.

T: Rhombuses have 4 sides and 4 corners, just like squares and rectangles. Turn and talk to your neighbor: How are the rhombuses different from the squares?

S: (Discuss. Responses will vary, but will likely include that the rhombuses have no square corners and that the sides can be different lengths.)

Part 3: Build and sort.

Notes: Each student needs a geoboard and band(s).

T: Today we've been talking about many different shapes. Now it's your turn to build one of the shapes we talked about, any way you choose. If you need help, look back at the shapes in and out of the circle. (Distribute geoboards and rubber bands to students.)

S: (Each student builds a shape on their geoboard.)

T: Wow, we have so many different shapes! Let's sort them into groups. How might we sort our shapes?

S: We can put all the shapes of one kind together. → Sort by size. → You can sort them by the color of bands used. → We can put the shapes that have equal sides and corners in one group and those that don't in another group.

T: (Prompt students to physically sort the shapes (geoboards) in more than one way as suggested by students, being sure to sort by shapes that have equal sides and corners and those that do not.)

S: (Students bring their geoboards to the carpet and sort them into groups in more than one way.)

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted time.

Student Debrief (10 minutes)

Lesson Objective: Classify and sort irregular two-dimensional shapes based on attributes using informal geometric language.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- What did we learn about shapes today?
- What new (or significant) math vocabulary did we use today to communicate precisely?
- Explain to your partner how you knew the names of each shape.
- What do you look for in a triangle?
- What do you look for in a hexagon?
- What is the name of a shape with 4 sides?
- How are rectangles and squares the same and different? Rhombuses and squares?
- How many triangles (hexagons, rectangles, or rhombuses) are on your graph? Does your partner have the same number of shapes in each group?

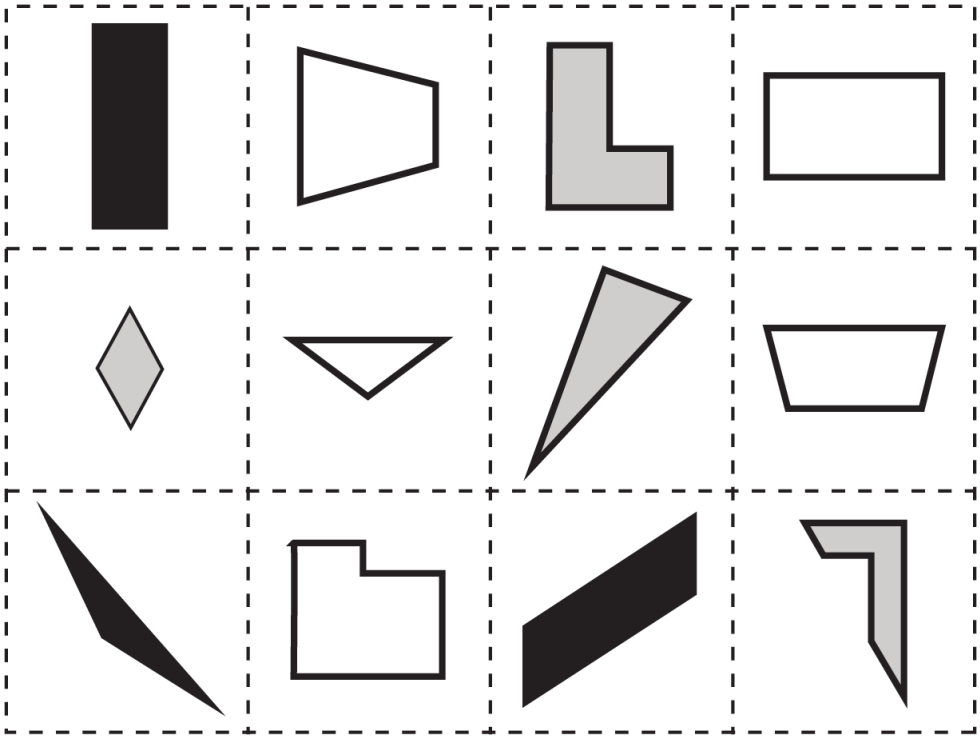
Exit Ticket (5 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

Name _____ Date _____

Cut out the shapes and paste them into the correct box. You will have two shapes leftover.

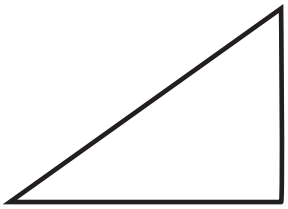
triangle	
hexagon	
rectangle	
rhombus	



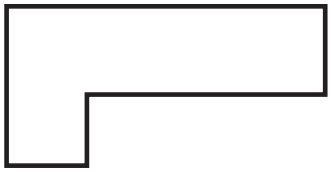
Name _____ Date _____

Draw a line from the shape to its shape name.

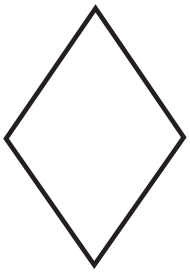
hexagon



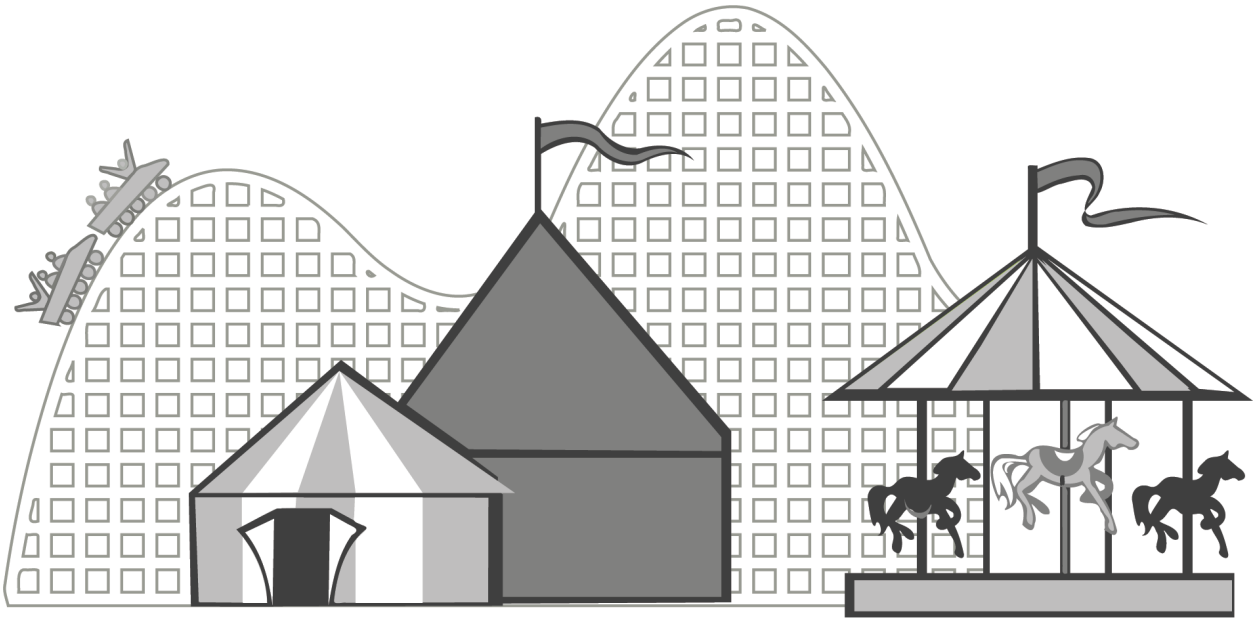
rhombus

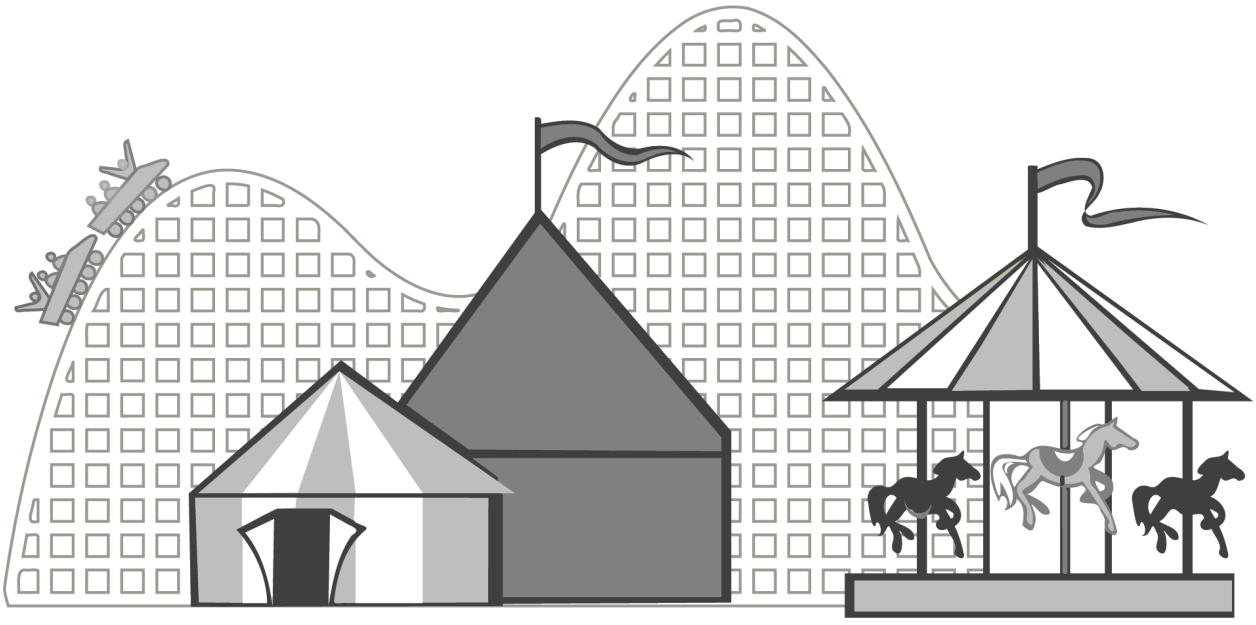


trapezoid

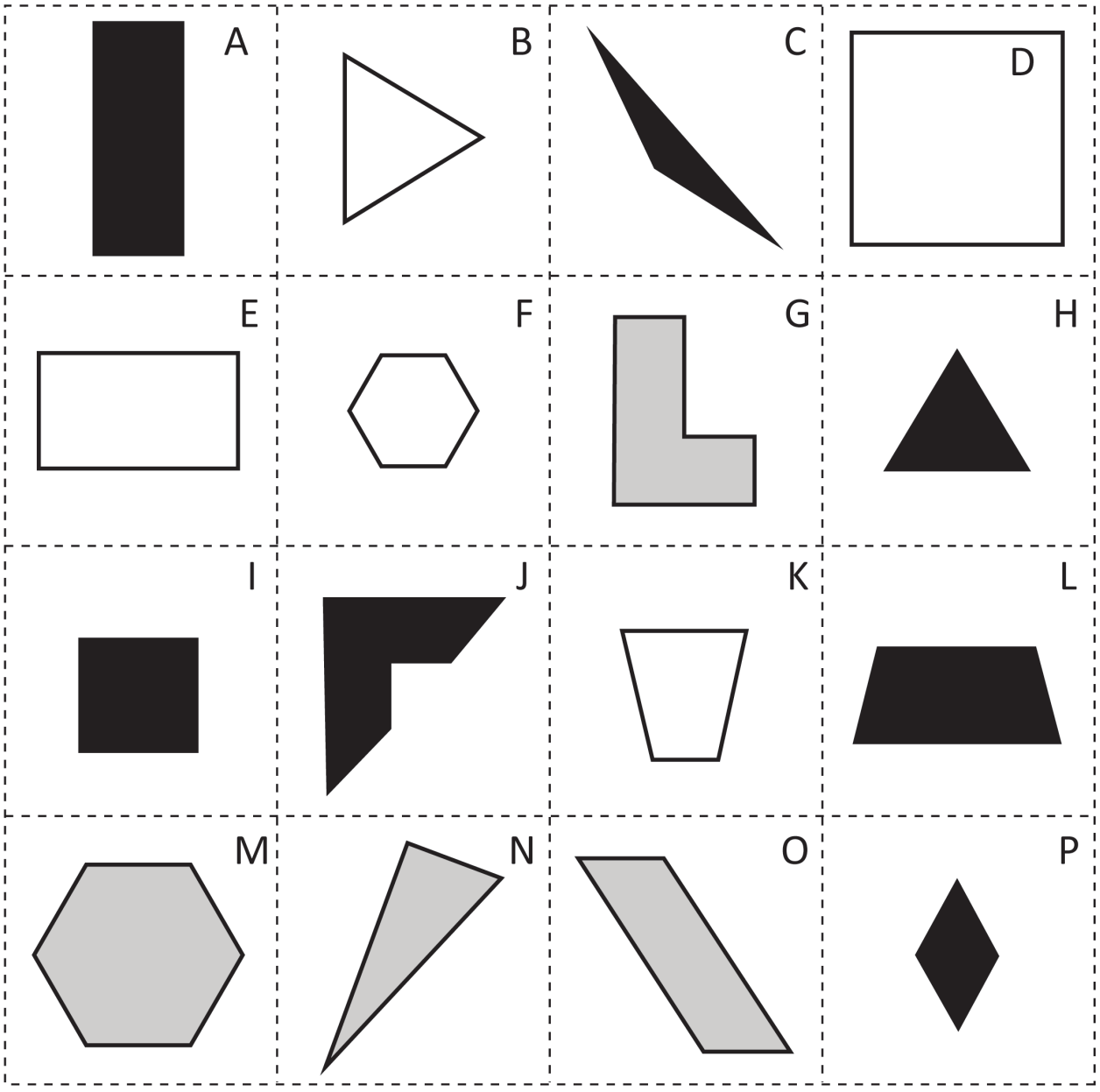


rectangle





shapes at the fair



in and out shape cards

Application Problem

Partners identify a black rectangle and white square in the picture.

Problem Set

Shapes pasted in the correct category.

- There should be three triangles pasted in row 1, three hexagons pasted in row 2, two rectangles pasted in row 3, one rhombus pasted in row 4, and three extra shapes.

Exit Ticket

Shapes from top to bottom:

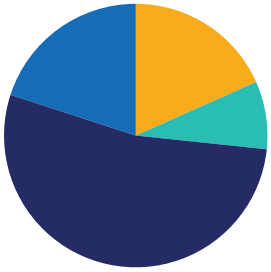
- Rectangle
- Triangle
- Hexagon
- Rhombus

Lesson 21

Objective: Measure the length of objects to reinforce the continuous nature of linear measurement.

Suggested Lesson Structure

Fluency Practice	(11 minutes)
Application Problem	(5 minutes)
Concept Development	(32 minutes)
Student Debrief	(12 minutes)
Total Time	**(60 minutes)**



Fluency Practice (11 minutes)

- Longer/Shorter **K.2H** (2 minutes)
- *Make Ten* Addition with Partners **1.3D** (6 minutes)
- Add Tens **1.3A** (3 minutes)

Longer/Shorter (2 minutes)

Materials: (T) Board or document camera

Note: Working with visualizing relationships among numbers can support students' number sense development. Using strip diagram models helps students recognize methods for representing numbers in relation to other numbers.

Write one pair of numbers on the board (e.g., 6 and 4).

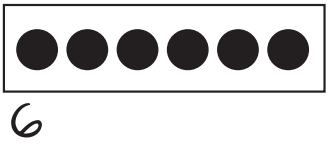
Draw a rectangle above the first number.

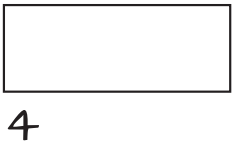
T: This rectangle is long enough to hold a row of 6 dots. (Draw 6 dots so they fill the space.)

T: (Point to the second number, which in this first example is 4.) I'm going to start drawing a rectangle that is long enough to hold a row of 4 dots of the same size. Tell me to stop when you think the rectangle is the correct size.

T/S: (Begin drawing a rectangle, and give students the chance to say "Stop!" when it is approximately long enough for 4 dots.)

T: Why did you say "stop" there?





S: It's just a little shorter than the first rectangle.

T: Let's check our work by drawing 4 dots in it. (Draw 4 dots in the rectangle.)

Repeat this process for the following pairs of numbers: 5 and 4, 5 and 5, 1 and 3, and 4 and 6. For these number pairs, draw rectangles without dots. Have students talk about how the first number relates to the second number using language such as *a little longer, a little shorter, much longer, double,* etc.

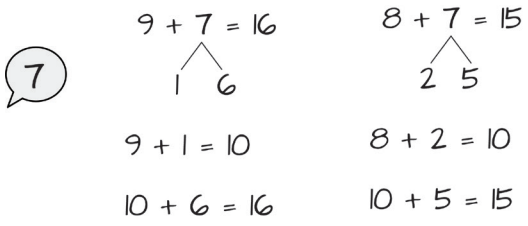
As needed for support, have students use a number line. Have them place their left pointer finger on zero and then slide their right pointer finger to the first number (endpoint). Keeping their left finger on 0 and their right finger on the first number, have them slide their right finger left or right to show the second number. Ask, "Which number is closer to 0? Which number is greater? Lesser? How do you know?"

Make Ten Addition with Partners (6 minutes)

Materials: (S) Personal white board

Note: This fluency activity reviews how to use the strategy of *making ten* to add two single-digit numbers.

- Arrange students in pairs.
- Partner A chooses an addend from 1 to 10.
- Partner B uses the *make ten* strategy to add the addend to both 9 and 8.
- Partner A does the same to check Partner B's work.
- Partners reverse roles and repeat.



Add Tens (3 minutes)

Note: This fluency activity reviews adding multiples of 10 to single-digit numbers.

T: (Flash 4 on fingers. Pause.) Add ten. The total is…?

S: 14.

T: (Flash 4 again.) Add 2 tens. The total is…?

S: 24.

For one minute, continue flashing numbers from 0 to 9 and instructing students to add multiples of 10. Then continue the activity for an additional minute, but say the multiples of 10 the regular way (e.g., 20 instead of 2 tens).

Application Problem (5 minutes)

Jordan and Jana are arguing over who can jump farther. With a partner, discuss how the two children can decide who jumps farther. What tools will they need when deciding this? What are the steps they will take when using these tools?

After students discuss with partners, have several students share with the whole class.

Note: The goal of this Application Problem is to consider how measurement can be used to solve everyday problems. A second goal is to identify linear measurement tools. These may be both formal (e.g., ruler, yardstick) and informal (e.g., string, jump rope, paper).

Concept Development (32 minutes)

Materials: (T) Ball of string
(S) Length of string cut to 6 or more feet, scissors, tape, glue

Part 1: Measuring Width

Note: The goal of Part 1 is to review the idea that measurement is continuous. A linear measurement tool can be continued or extended to measure a distance.

T: Our principal is thinking of buying a new rug for our classroom and needs to know what size of rug to buy. How can we measure the width of our room (make a pointing motion to show width) so the principal can buy the right-sized rug?

S: Use a ruler or tape measure. → Use your feet to measure it. → Count the tiles.

T: All of these are great ideas. I think I'll try using this ball of string. I can cut the string to match the width of our room. Then I can give the length of string to our principal. (Display a ball of string with a length of three feet unrolled.) Can I have a volunteer hold the end of this string?

S: (Stand and hold the end of the string.)

T: If we want to measure the width of the room, where should our volunteer stand with the start of the string?

S: At the end of the floor, by the wall.

T: Now I'll measure the width of the room. (Pretend to measure using only the three feet of unrolled string.) Oh no, the string isn't long enough to measure the room. What should I do?

S: Unroll more string.

T: Yes! Measurement is continuous. That means it keeps going. If I need my measurement tool to be longer, I can just unroll it to make it longer. (Finish measuring the width of the classroom while unrolling a couple feet at a time. Pinch the string to show where you stopped measuring.)

T: Let's cut the string where we stopped measuring. Now this cut piece of string represents the width of our classroom. I can give this to the principal to show the width of our classroom.

Part 2: Measuring Distance around an Object

Notes: The goal of Part 2 is to review that linear measurement measures a continuous line which may bend or curve, but not break. During Part 2, partners are asked to measure their desks. They should only measure one of their desks since both desks are likely the same size. If desks are not the same size, have pairs choose one desk to measure.

T: (Give each pair of students six feet of string.) Next, it's your turn to practice measuring. You and a partner will work together to measure the distance around your desktop. Talk to your partner about what it means to measure the distance around your desktop.

S: (Discuss with a partner.)

T: What part of the desk do we measure when measuring distance around the desktop?

S: All four sides of the desktop.

T: As you measure, what should you do when you get to the end of a side?

S: Turn the corner and keep going.

T: Yes, measuring distance is continuous. It may curve or turn a corner, but it keeps going. How do you know when to stop measuring?

S: When you get back to where you started.

T: How will you know where you started?

S: The start of the string will be there.

T: I am going to give each pair of students a piece of tape so you can tape the start of the string to your desktop. (Distribute pieces of tape.) When you finish measuring the distance around your desktop, cut the string to show where you stopped.

S: (Measure the distance around the desktop. Cut string to match distance.)

Once partners finish measuring, reiterate the continuous nature of linear measurement. Remind students that they didn't need to stop measuring at the corner of the desk. They could have turned the corner and kept going because measurement is continuous. Additionally, reiterate the need to start and stop measuring at the same point when measuring distance around an object so there are no gaps or overlaps.

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Asking students to wrap a string around their desktop reiterates the important concept that measurement is continuous even when it is not presented as a linear length. This understanding will support students in composing perimeter in later grades as the sum of individual side lengths to find the total length.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted time.

When solving Problem 3, students may need a partner to help hold their string.

Student Debrief (12 minutes)

Lesson Objective: Measure the length of objects to reinforce the continuous nature of linear measurement.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- When we measure the length of an object, what is something we must do to get the correct measurement?
- When we measure the distance around an object, what is something we must do carefully to get the correct measurement?
- Which line was longer/shorter, a or b? How do you know?
- What could you have done if you had run out of string while measuring?
- What mistakes did Jorge and Jana make while measuring?

Exit Ticket (5 minutes)

Materials: (S) Paper strips (Exit Ticket Template), glue

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

Distribute three paper strips to each student. Students cut apart the paper strips to use as measuring tools on the Exit Ticket.

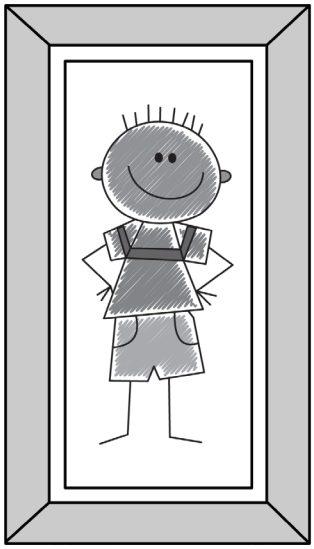
Name _____ Date _____

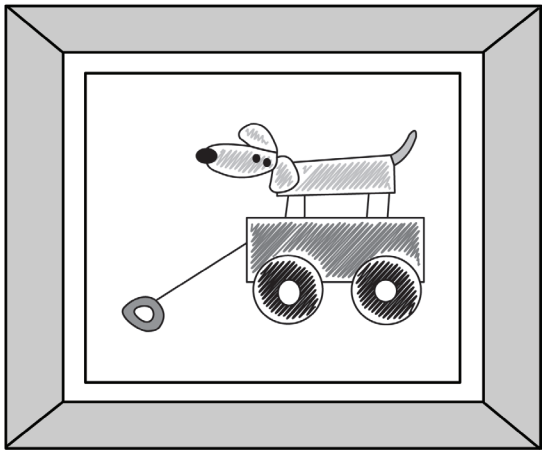
Use your string to measure each line.

a.

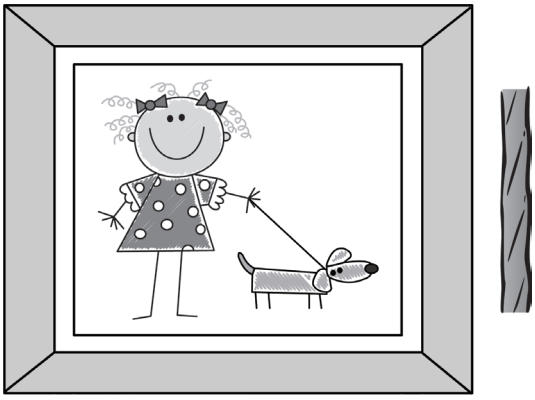
b.

1. Which line is longer? (circle one) a b
2. Which line is shorter? (circle one) a b
3. Use your string to measure the distance around each picture frame. Circle the picture frame with the greater distance around it.

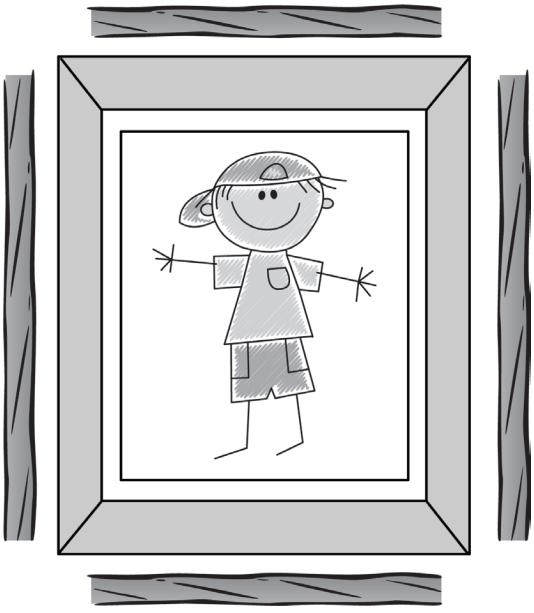




4. Jorge used string to measure the height of this picture frame. Did Jorge measure correctly? Why or why not?



5. Jana used string to measure the distance around this picture frame. Did Jana measure correctly? Why or why not?



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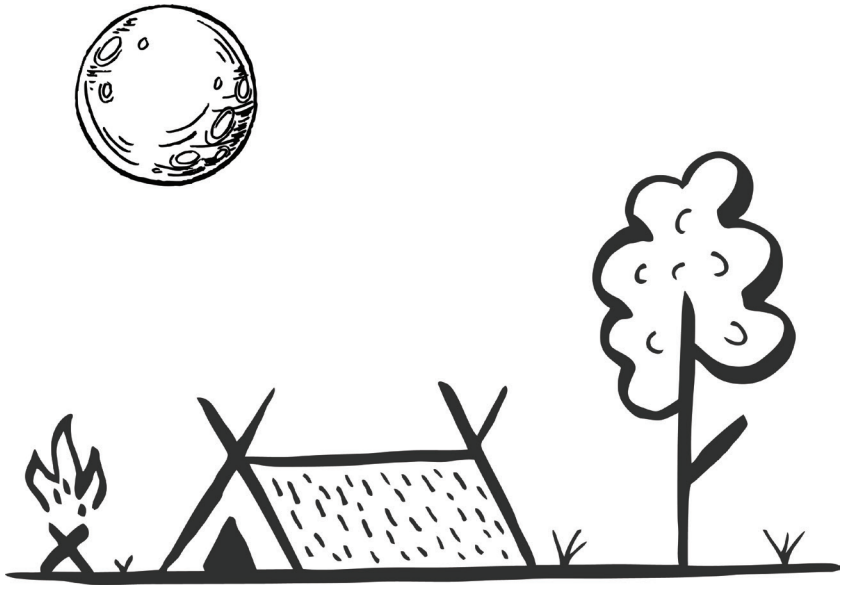


1. Use a paper strip to measure the height of the tree from the top of the leaves to the ground.
   Cut the strip to match. Glue it below.

2. Use a paper strip to measure the length of the tent.
   Cut the strip to match. Glue it below.

3. Use a paper strip to measure the distance around the moon.
   Cut the strip to match. Glue it below.

paper strips — Each student receives 3 paper strips for the Exit Ticket.

Application Problem

Student responses will vary, but may include using a formal tool such as a ruler or measuring tape, or an informal tool such as a piece of string. Students may mention aligning the measuring tool at the start or end of the jump.

Problem Set

1. a
2. b
3. The picture frame containing the dog should be circled.
4. Jorge didn't match the start and end of the string to the top and bottom of the frame.
5. Jana should have used one continuous length of string to avoid having gaps in her measurement.

Exit Ticket

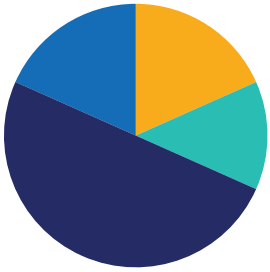
1. Strip of paper should be cut to match the approximate height of the tree.
2. Strip of paper should be cut to match the approximate length of the tent.
3. Strip of paper should be cut to match the approximate distance around the moon.

Lesson 22

Objective: Measure the length of objects to reinforce the continuous nature of linear measurement.

Suggested Lesson Structure

Fluency Practice	(11 minutes)
Application Problem	(8 minutes)
Concept Development	(30 minutes)
Student Debrief	(11 minutes)
Total Time	**(60 minutes)**



Fluency Practice (11 minutes)

- Digit Detectives **1.2A, 1.2B** (4 minutes)
- Addition Fluency Review: Missing Addends **1.3D** (5 minutes)
- Relating Addition and Subtraction **1.3D** (2 minutes)

Digit Detectives (4 minutes)

Materials: (T/S) Personal white board

T: (Write a two-digit number on a personal white board, but keep it hidden from students.) The digit in the tens place of my number is 6. The digit in the ones place is 8. What's my number? (Provide ample wait time, then signal.)

S: 68.

T: What's the value of the 6? (Pause, then signal.)

S: 60.

T: What's the value of the 8? (Pause, then signal.)

S: 8.

Repeat the sequence with a ones digit of 5 and a tens digit of 5.

T: The digit in the tens place is 1 more than 4. The digit in the ones place is equal to 7 – 2. What's my number? (Snap to signal.)

S: 55.

T: The digit in the ones place is equal to 2 + 6. The digit in the tens place is equal to 8 – 6. What's my number? (Snap.)

S: 28.

Continue with additional clues, gradually increasing the complexity.

Addition Fluency Review: Missing Addends (5 minutes)

Materials: (S) Addition fluency review: missing addends (Fluency Template)

Note: This review sheet contains the majority of addition facts with sums of 5–10. The focus on missing addends strengthens students' ability to count on.

Students complete as many problems as they can in three minutes. Choose a counting sequence for early finishers to practice on the back of their papers. When time runs out, read the answers aloud so students can correct their work. Encourage students to record how many problems they answered correctly in the allotted time so they can work to improve their scores during the next lesson's Missing Addends Addition Fluency Review.

Have students keep their review sheet in front of them for the next fluency activity.

Relating Addition and Subtraction (2 minutes)

Materials: (S) Addition Fluency Review: Missing Addends (Fluency Template)

Note: Reviewing the relationship between addition and subtraction is especially beneficial for students who need additional support with subtraction.

Students choose a column from the review sheet and rewrite each problem as a subtraction equation, seeing how many they can complete in two minutes.

Application Problem (8 minutes)

Materials: (T) Measuring pencils (Application Template)

Display a copy of the measuring pencils template, or provide a copy to students.

The teacher modeled three different ways to measure a pencil using yarn. He asked his students to tell him which way was correct.

Which way is correct? Explain your reasoning.

Concept Development (30 minutes)

Materials: (T) Bucket of connecting cubes
(S) 10 connecting cubes per student

T: If I want to buy a new bookshelf to hold our classroom books, how can I make sure the shelves are the right height for our books? Which part of a book can I measure to check

S: Its height. → The book's spine.

T: Yes. We are measuring to find the height of books. That means we want to know how tall each book is. Yesterday we used string to measure. Today we will use connecting cubes. What are some important things to remember as we measure height?

S: Start at the very edge or bottom of the book. → Keep measuring until you reach the top.

NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Posing a real-world problem motivates students to participate. When students see problems are relevant to their lives, they are more invested in the task.

T: Watch as I measure this book. (Model measuring the height of the book, but pretend to run out of connecting cubes.) Oh no, I don't have enough connecting cubes to measure the book. What should I do?

S: Get some more.

T: Yes! Measurement is continuous. That means it keeps going. I can keep adding cubes until I reach the top of my book. (Finish measuring the height of the book.)

T: This tower of cubes represents the height of my book. How many cubes tall is my book?

S: (Count cubes and respond.)

T: Now it's your turn to measure the height of a book. (Give each student 10 connecting cubes and a book from the classroom library.) You each have 10 connecting cubes to measure the height of your book. What should you do if your book is taller than 10 cubes?

S: Get more cubes from the bucket.

T: Yes! Remember, measurement is continuous. If you don't have enough cubes to measure your book, you can add some more. Keep adding more until your cubes reach the top of your book.

After students finish measuring the heights of their books, call on several students to share the process they used. Look to highlight ideas that include measuring from one end of the book to the other or connecting cubes to avoid gaps and ensure an accurate measurement. Remind students that they don't need to stop measuring when they run out of cubes because measurement is continuous (it keeps going).

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Some students may prefer to connect all 10 cubes and then break off the extra cubes when measuring. This is a natural transition from using discrete nonstandard units to using standard measurement tools in later grades. If you see students using this strategy, make sure to have them share.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted time.

Student Debrief (11 minutes)

Lesson Objective: Measure the length of objects to reinforce the continuous nature of linear measurement.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

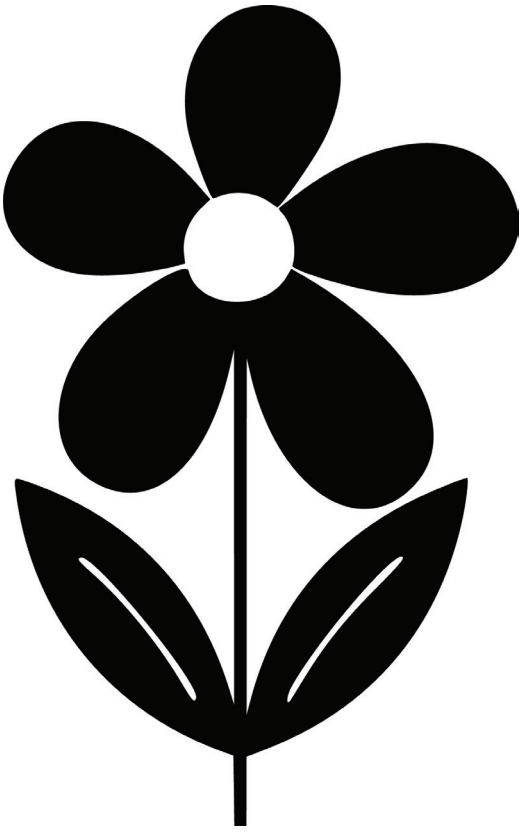
- When we measure the length or height of an object, what is something we must do to get the correct measurement?
- How did you solve Problem 2? Did you start by measuring the flower again, or did you just add more cubes to your original measurement? Do both strategies result in the same measurement? Why?
- What can you do if you run out of cubes when measuring?
- In Problem 3, what did you notice about Sona's measurement?

Exit Ticket (5 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

Name _____ Date _____

1. Use cubes to measure the height of the flower.



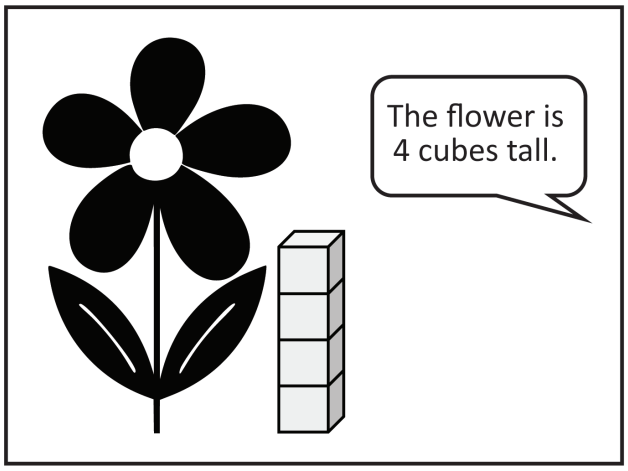
The flower is _____ cubes tall.

2. The flower grew. It is now 3 cubes taller.

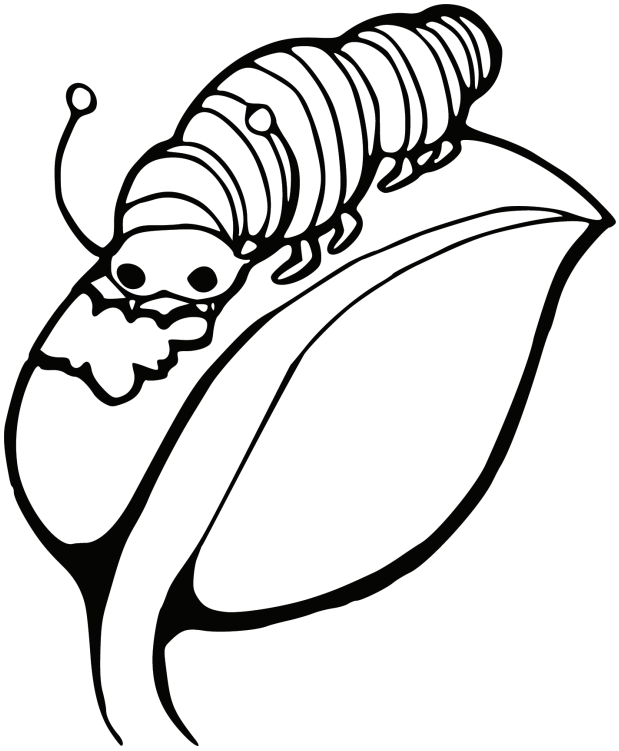
   How tall is the flower now? The flower is now _____ cubes tall.

3. Sona used cubes to measure the height of the flower.

   What did you notice about Sona's measurement?



4. Use cubes to measure the length of the caterpillar.



The caterpillar is

_____ cubes long.

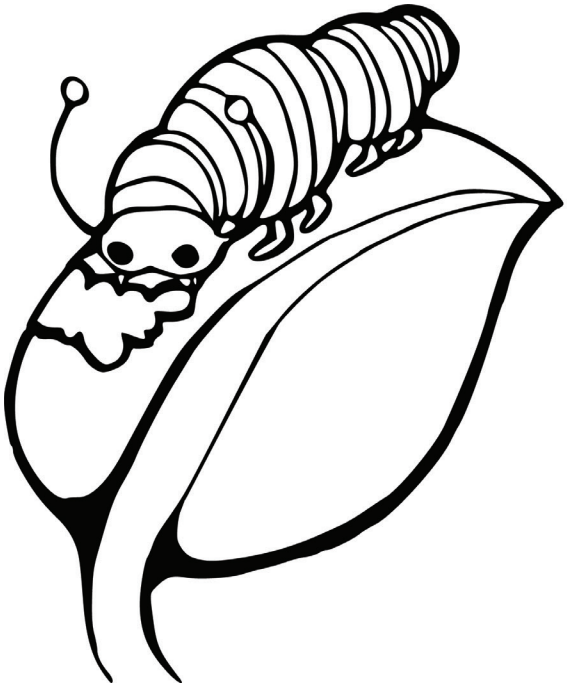
5. The caterpillar ate and grew. It is now 4 cubes longer.

   How long is the caterpillar now?

   The caterpillar is _____ cubes long.

Name _____ Date _____

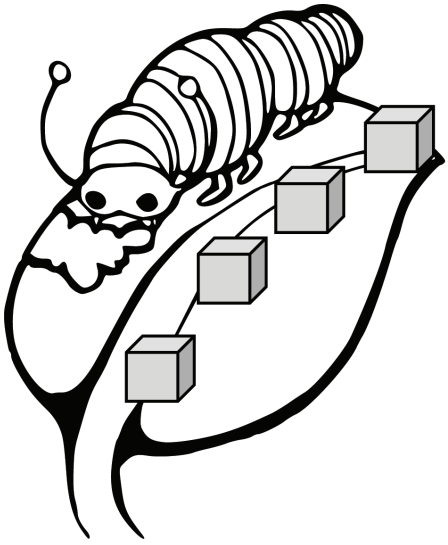
1. How long is the caterpillar's leaf? Hint: Make sure you measure from end to end.



The leaf is

_____ cubes long.

2. What do you notice about the way Lydia measured the caterpillar with cubes?



_____

_____

_____

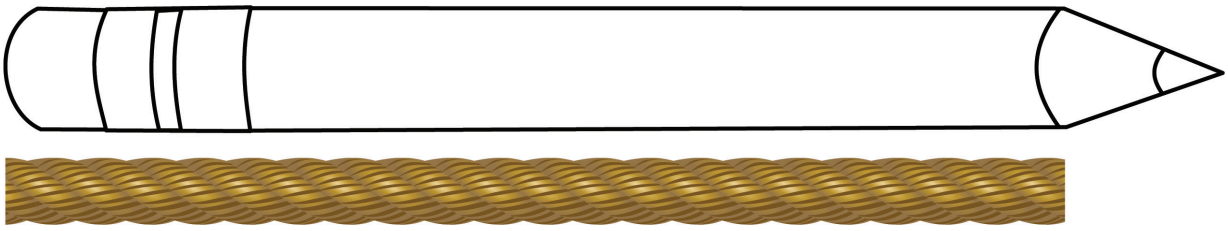
_____

Name _____ Date _____

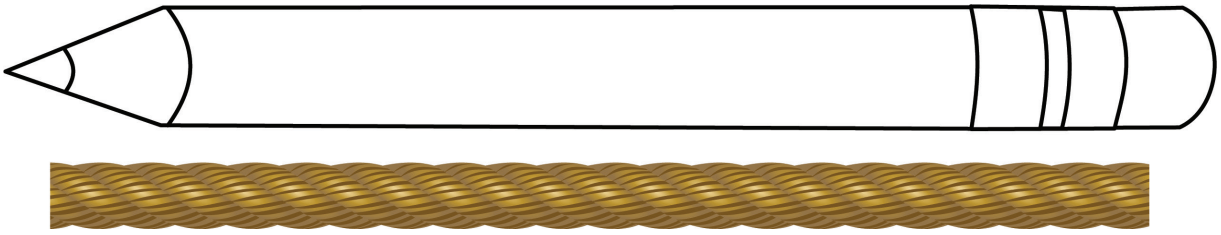
1.	5 + _____ = 5	16.	7 + _____ = 9	31.	10 + _____ = 10
2.	2 + _____ = 5	17.	5 + _____ = 9	32.	6 + _____ = 10
3.	3 + _____ = 5	18.	8 + _____ = 9	33.	7 + _____ = 10
4.	4 + _____ = 5	19.	4 + _____ = 9	34.	1 + _____ = 10
5.	1 + _____ = 5	20.	1 + _____ = 9	35.	8 + _____ = 10
6.	0 + _____ = 5	21.	3 + _____ = 9	36.	5 + _____ = 10
7.	5 + _____ = 7	22.	2 + _____ = 9	37.	2 + _____ = 10
8.	1 + _____ = 7	23.	6 + _____ = 9	38.	4 + _____ = 10
9.	6 + _____ = 7	24.	0 + _____ = 9	39.	3 + _____ = 10
10.	3 + _____ = 7	25.	6 + _____ = 6	40.	5 + _____ = 8
11.	2 + _____ = 7	26.	2 + _____ = 6	41.	3 + _____ = 8
12.	7 + _____ = 7	27.	4 + _____ = 6	42.	6 + _____ = 8
13.	4 + _____ = 7	28.	1 + _____ = 6	43.	2 + _____ = 8
14.	0 + _____ = 7	29.	5 + _____ = 6	44.	4 + _____ = 8
15.	3 + _____ = 9	30.	3 + _____ = 6	45.	7 + _____ = 8

addition fluency review: missing addends

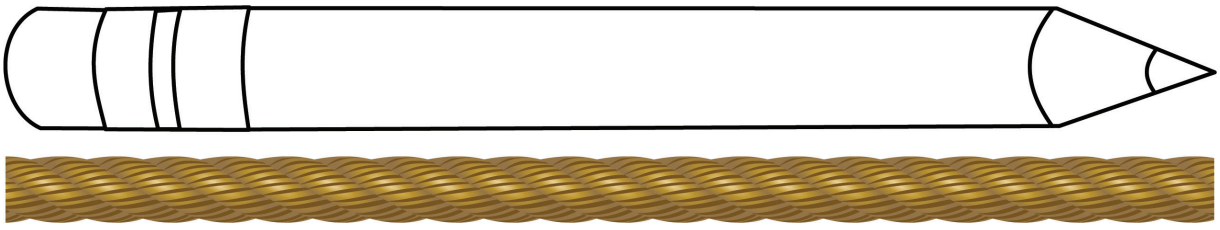
Measurement 1



Measurement 2



Measurement 3



measuring pencils

Addition Fluency Review: Missing Addends

1. 0	16. 2	31. 0
2. 3	17. 4	32. 4
3. 2	18. 1	33. 3
4. 1	19. 5	34. 9
5. 4	20. 8	35. 2
6. 5	21. 6	36. 5
7. 2	22. 7	37. 8
8. 6	23. 3	38. 6
9. 1	24. 9	39. 7
10. 4	25. 0	40. 3
11. 5	26. 4	41. 5
12. 0	27. 2	42. 2
13. 3	28. 5	43. 6
14. 7	29. 1	44. 4
15. 6	30. 3	45. 1

Application Problem

Measurement 3 is correct.; In measurement 1, he did not measure the entire length of the pencil. In measurement 2, he did not align the yarn with the start or end of the pencil and did not measure the entire length of the pencil.

Problem Set

1. Answers will vary depending on the size of the cubes and printed image.
2. Answers will vary depending on the size of the cubes and printed image, but should be 3 cubes taller than the height of the flower in Problem 1.
3. Sona needs to add cubes to her tower until it reaches the top of the flower.
4. Answers will vary depending on the size of the cubes and printed image.
5. Answers will vary depending on the size of the cubes and printed image, but should be 4 cubes longer than the length of the caterpillar in Problem 4.

Exit Ticket

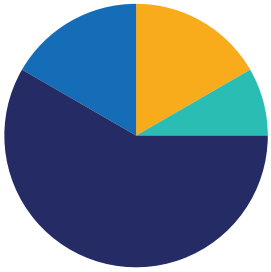
1. Answers will vary depending on the size of the cubes and printed image.
2. Lydia should measure from end to end, and there should be no gaps between cubes.

Lesson 23

Objective: Tell time to the hour using analog clocks.

Suggested Lesson Structure

Fluency Practice	(10 minutes)
Application Problem	(5 minutes)
Concept Development	(35 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



Fluency Practice (10 minutes)

- Beep Counting by Ones **1.5A, 1.5C** (3 minutes)
- Addition Fluency Review: Missing Addends **1.3D** (5 minutes)
- Relating Addition and Subtraction **1.3D** (2 minutes)

Beep Counting by Ones (3 minutes)

Note: This fluency activity allows students to practice recalling the counting sequence as well as practice mentally adding and subtracting 10 from a given number.

Say a series of four numbers, but replace one of the numbers with the word *beep* (e.g., "1, 2, 3, beep"). When signaled, students say the number that was replaced by the word *beep* in the sequence. Scaffold number sequences, beginning with simpler sequences and moving to more complex ones. Choose sequences that count forward and backward by ones and tens within 100.

Suggested sequence type: 10, 11, 12, beep; 30, 31, 32, beep; 30, 29, 28, beep; 40, 39, 38 beep; 0, 10, 20, beep; 1, 11, 21, beep; 80, 70, 60, beep; and 79, 69, 59, beep. Continue with similar sequences, changing the sequential placement of the beep.

Addition Fluency Review: Missing Addends (5 minutes)

Materials: (S) Addition Fluency Review: Missing Addends (Lesson 22 Fluency Template)

Note: This review sheet contains the majority of addition facts with sums of 5–10. The focus on missing addends strengthens students' ability to count on.

Students complete as many problems as they can in three minutes. Choose a counting sequence for early finishers to practice on the back of their papers. When time runs out, read the answers aloud so students can correct their work. Celebrate improvement by having students compare yesterday's total correct with today's total correct. Students may give themselves a silent cheer if they notice improvement.

Relating Addition and Subtraction (2 minutes)

Materials: (S) Addition Fluency Review: Missing Addends (Lesson 22 Fluency Template)

Students choose a column from the review sheet and rewrite each problem as a subtraction equation, seeing how many they can complete in two minutes.

Application Problem (5 minutes)

Ms. Myers asks her students to name activities they usually do around 11 o'clock. Bryan says he eats lunch at 11 o'clock. Desire says she is usually sleeping at 11 o'clock. Which student's answer makes sense? Could both students' answers be correct?

What are some activities you might do at 11 o'clock?

Concept Development (35 minutes)

Materials: (T) Time cards (Template), teacher clock with gears
(S) Student clock with gears

Note: Clock times from the lesson may be modified to reflect activities from students' daily lives. Be sure to select activities that occur on the hour (e.g., eight o'clock).

Part 1: Time to the Hour

T: Why is a clock a helpful tool?

S: It helps us get places on time. → It tells us when to go to lunch and P.E.

T: Yes. Without clocks, friends wouldn't know when to meet each other for a play date. We wouldn't know when a movie is starting at the movie theater. The bus wouldn't get you to school on time. Clocks help us stay on a schedule. In order to know how to read a clock, we need to know about the different hands on a clock. Tell your partner the names of the hands on a clock.

S: (Discuss with a partner.) Hour hand and minute hand.

T: The hour hand is the little hand, and the minute hand is the big hand. Move the minute hand on your clock in a full circle.

S: (Move the minute hand.)

T: What do you notice?

S: Moving the minute hand makes the hour hand move, too. → The minute hand moves a lot, and the hour hand moves a little.

T: Each time the minute hand moves in a circle all the way around the clock, an hour passes. (Display teacher clock to show four o'clock.) Right now, my clock shows four o'clock. (Model moving the minute hand in a complete circle around the clock.) At first, my clock hands showed four o'clock. What time do you think the clock is showing now?

S: Five o'clock.

T: Yes, when the minute hand turns in a complete circle, an hour passes. It is now five o'clock. (Model moving the minute hand in a complete circle once again.) What time do you think the clock is showing now?

S: Six o'clock.

T: With your partner, change your clock so the big hand is on the 12 and the little hand is on the 8.

S: (Move clock hands.)

T: We always read the hour first. Which hand is the hour hand?

S: The little one.

T: Yes, since the hour hand is pointing to 8, we say *eight*. Next, we read the minute hand. Your minute hand is at the beginning of an hour when it points straight up to the 12. When the minute hand points to 12, we say *o'clock*. The time on your clock is eight o'clock.

T: Next, move the hands on your clock to show 10 o'clock.

S: (Move clock hands.)

T: Where are the hands on your clock now?

S: The hour hand is on ten, and the minute hand is on 12.

T: We use clocks every day at school. (Move the hands on the teacher clock to show 12:00.) Whenever my clock on the weekend shows this time, I know I need to eat lunch. At what time do I eat lunch?

S: 12 o'clock.

T: (Move the hands on the teacher clock to show nine o'clock.) Look at my clock. Talk to your partner about what you might be doing at this time, either at school or on the weekend. Remember, each time happens twice a day. This might be morning or nighttime.

S: (Students share activities they do at nine o'clock.)

Repeat the pattern of asking students to represent a given time on their clocks, then asking them to read time on the teacher's clock. Be sure to focus on telling time to the hour.

Part 2: Time Mix and Match

Cut apart the time cards (Template) and distribute one card to each student. Ensure that each student has a card that matches the time on another student's card. If there is an odd number of students, the teacher should also take a time card.

Students walk around the room until a signal is given (e.g., clap, snap, or whistle.) Each student silently tries to find another student with a matching time. For example, one student has a card reading *4 o'clock,* and their partner has an analog clock displaying four o'clock. When students form a pair, they sit together. If there are students without matches, have these students share their times with the class. Allow students to revise matches as needed until all students have been paired up correctly.

Shuffle cards and repeat the activity as time allows.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted time.

NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Asking students without a match to share their times with the class fosters a collaborative classroom community. Students come to understand that mistakes and errors are a normal part of the learning process, and that classmates can be an additional resource for support when needed.

Student Debrief (10 minutes)

Lesson Objective: Tell time to the hour using analog clocks.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

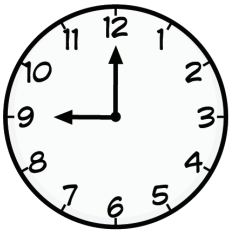
- Look at Problem 1. Which times did you know right away? Why? Which times took longer to figure out? Why?
- Look at Problem 2. Where did you draw the hour hand to show four o'clock? Is the placement of the hour hand just before, just after, or straight toward the 4?
- What is the same about all of the times on your Problem Set?
- What is different about all of the times on your Problem Set?
- Besides our classroom, where else have you seen a clock, including a digital clock?
- Name the parts of the clock we discussed today. (Hour hand, minute hand.)

Exit Ticket (5 minutes)

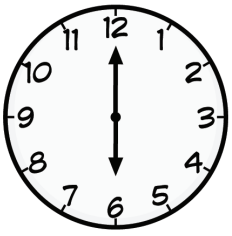
After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

Name _____ Date _____

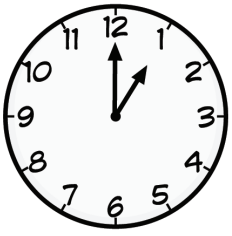
1. Draw a line from the clock to its matching time.



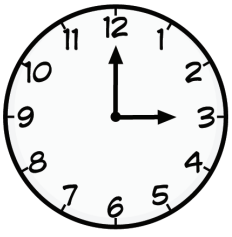
1 o'clock



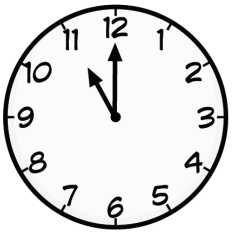
3 o'clock



6 o'clock

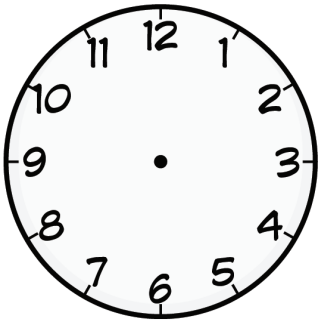


9 o'clock

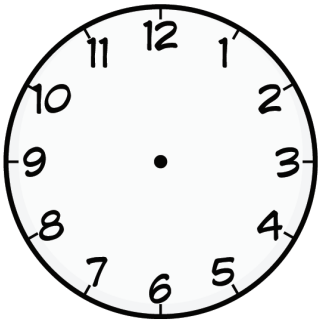


11 o'clock

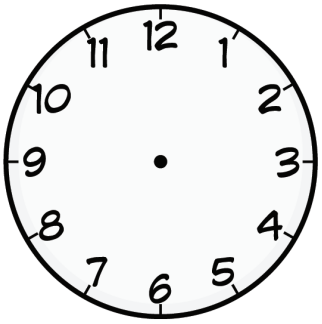
2. Draw hands on the clock to show each time.



4 o'clock

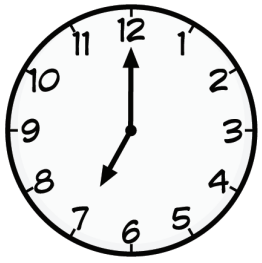


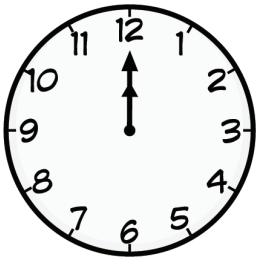
8 o'clock

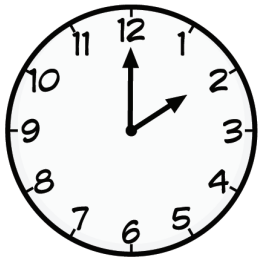


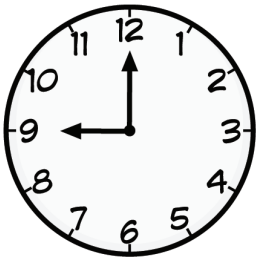
12 o'clock

3. Read the clock. Name an activity you might be doing at this time on the line.



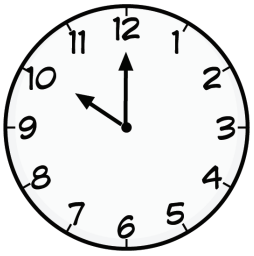




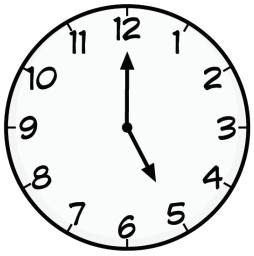


Name _____ Date _____

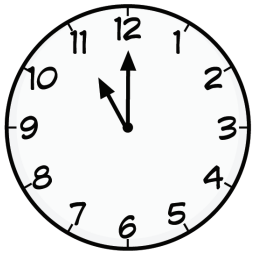
1. Complete the time to match each clock.



_____ o'clock

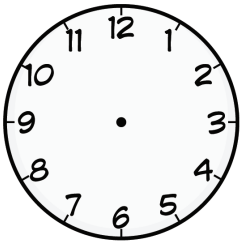


_____ o'clock

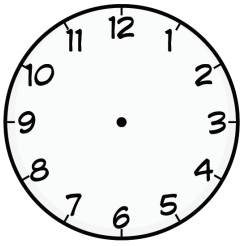


_____ o'clock

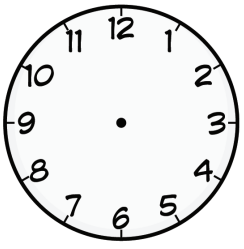
2. Draw hands on the clock to show each time.



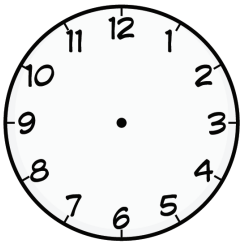
2 o'clock



6 o'clock



11 o'clock



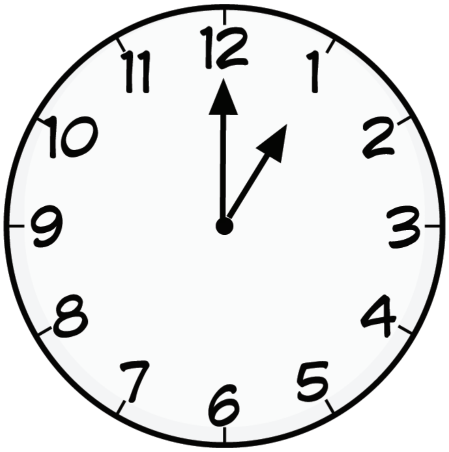
7 o'clock

1 o’clock	2 o’clock
3 o’clock	4 o’clock
5 o’clock	6 o’clock

time cards

Cut apart cards prior to lesson.

7 o’clock	8 o’clock
9 o’clock	10 o’clock
11 o’clock	12 o’clock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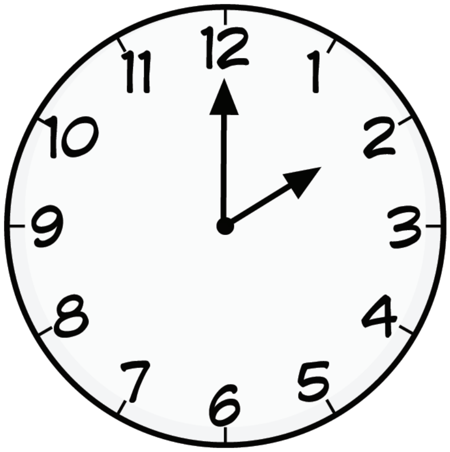
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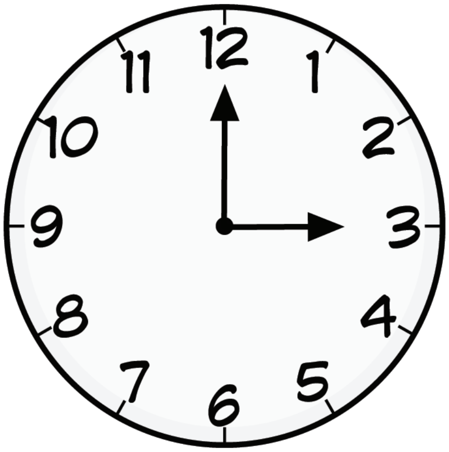
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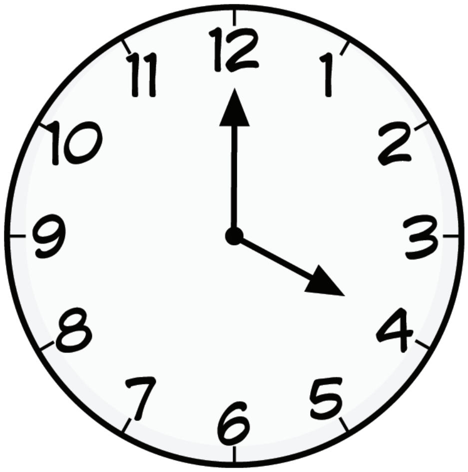
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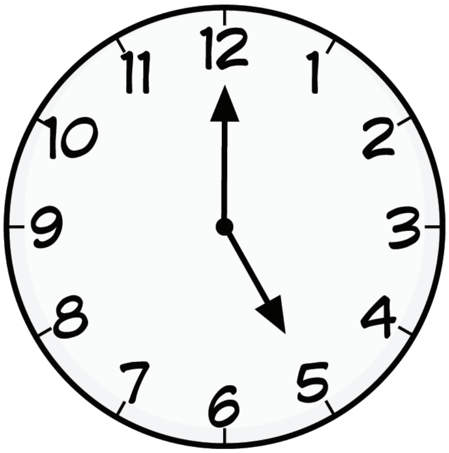
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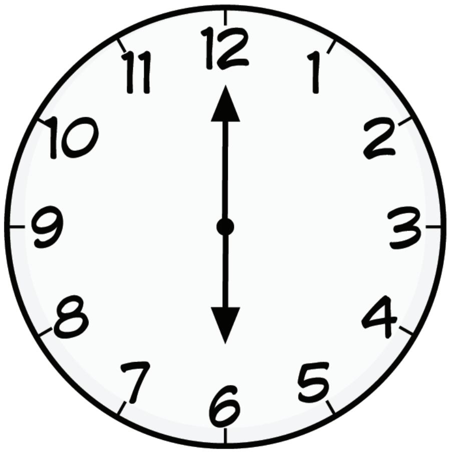
12
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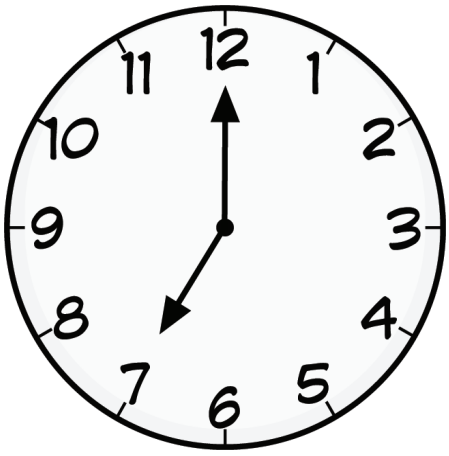
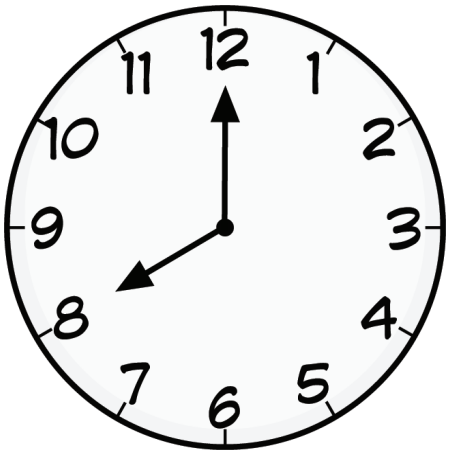
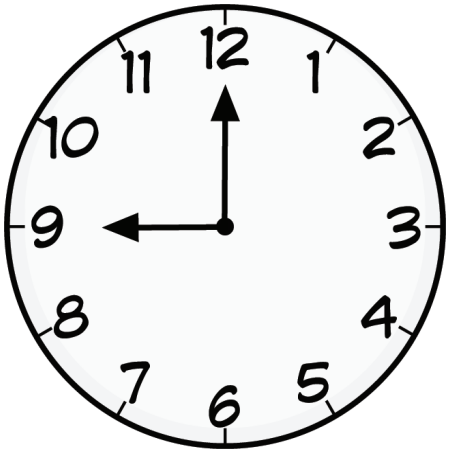
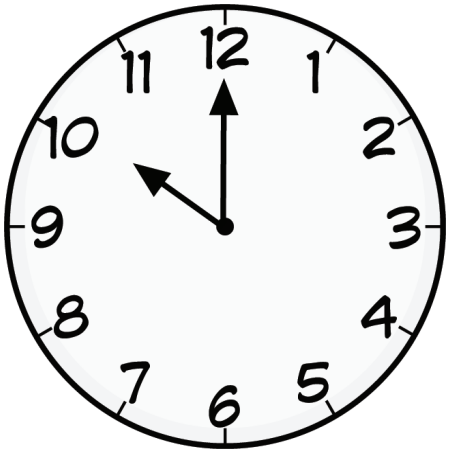
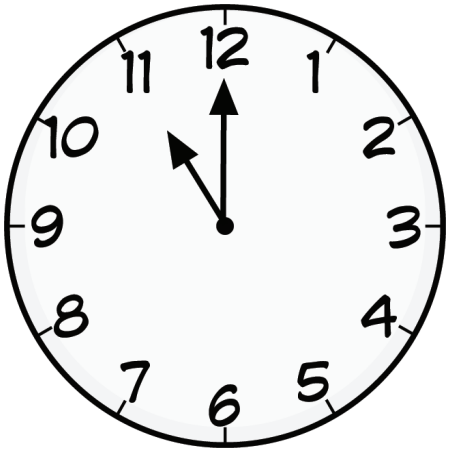
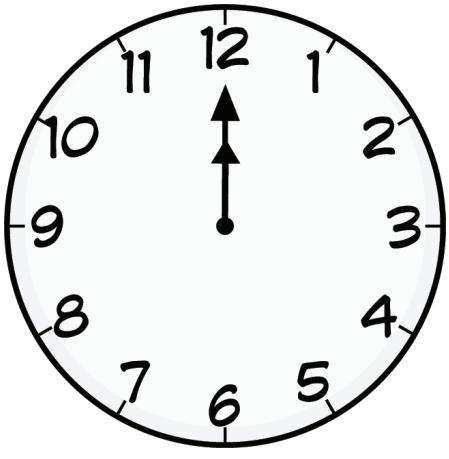







Application Problem

Both students can be correct since 11:00 occurs twice a day. Answers will vary.

Problem Set

1. 9 o'clock
   6 o'clock
   1 o'clock
   3 o'clock
   11 o'clock
2. Hour hand points to 4; minute hand points to 12
   Hour hand points to 8; minute hand points to 12
   Hour hand points to 12; minute hand points to 12
3. Answers will vary.

Exit Ticket

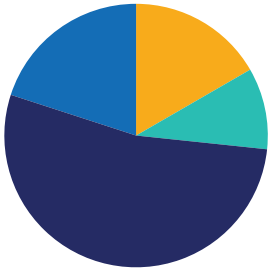
1. 10
   5
   11
2. First row:
   Hour hand points to 2; minute hand points to 12
   Hour hand points to 6; minute hand points to 12
   Second row:
   Hour hand points to 11; minute hand points to 12
   Hour hand points to 7; minute hand points to 12

Lesson 24

Objective: Tell time to the half hour using analog clocks.

Suggested Lesson Structure

Fluency Practice	(10 minutes)
Application Problem	(6 minutes)
Concept Development	(32 minutes)
Student Debrief	(12 minutes)
Total Time	**(60 minutes)**



Fluency Practice (10 minutes)

- Take Out 1 or 10 **1.2D, 1.5C** (2 minutes)
- Race to the Top **1.3D, 1.5G** (5 minutes)
- Coin Drop **1.4A, 1.4C** (3 minutes)

Take Out 1 or 10 (2 minutes)

Note: This activity reviews place value.

Choose numbers between 10 and 20 and follow the steps below.

T: Say 13 the Say Ten way.
S: Ten 3.
T: Take out 1.
S: Ten 2.
T: Say 13 the Say Ten way.
S: Ten 3.
T: Take out ten.
S: 3.

Repeat the above steps for 15 and 12.

Race to the Top (5 minutes)

Materials: (S) 2 dice per pair of students, personal white board, crayon, race to the top (Fluency Template)

Arrange students in pairs. Each student colors on their own copy of race to the top, trying to be the first to color an entire column.

Students take turns rolling the dice, saying a matching addition sentence, and coloring in a square above the sum on the race to the top graph. The game ends when time runs out or one of the columns reaches the top of the graph.

Coin Drop (3 minutes)

Materials: (T) 4 dimes, 10 pennies, can or metal container

Note: In this activity, students practice adding and subtracting ones and tens.

T: (Hold up a penny.) Name my coin.

S: Penny.

T: How much is it worth?

S: 1 cent.

T: Listen carefully as I drop coins in my can. Count along in your minds.

Drop in some pennies and ask students to tell the value of the money in the can. Take out some pennies and show them. Ask how much money is still in the can. Continue adding and subtracting pennies for a minute or so. Then repeat the activity with dimes.

Application Problem (6 minutes)

Materials: (S) Student clock with gears

Nelly's bus picks her up at 8:00. Show 8:00 on your clock. What time might Nelly wake up in the morning? Show this time on your clock.

Note: The purpose of this activity is to review telling time to the hour and discuss time within the context of daily life.

Concept Development (32 minutes)

Materials: (T) Time to the half hour poster (Template 1), clock cards (Template 2), teacher clock with gears
(S) Student clock with gears

Part 1: Telling Time to the Half Hour

T: Yesterday, we learned to tell time to the hour. At the beginning of an hour, we say *o'clock*. Where does the minute hand point when we say *o'clock*?

S: 12.

T: (Display seven o'clock on the teacher clock.) Show this time on your own clock. Then tell your partner the time your clock is showing.

S: (Talk to a partner.) Seven o'clock.

T: Today, we will keep working with time as we practice telling time to the half hour. When the minute hand turns in a half-circle around the clock, half an hour has passed. (Display moving the minute hand in a half-circle around the teacher clock to show seven thirty.) When we see the minute hand pointing straight down, we know we are halfway through the hour. We are no longer at seven o'clock, we are halfway through this hour. Some people call this *half past seven.* Others say *seven thirty*. Today, we will say *seven thirty*.

T: (Display eight o'clock on the teacher clock.) Show this time on your clock.

S: (Display eight o'clock.)

T: What time does your clock show?

S: Eight o'clock.

T: Move your minute hand in a half-circle around your clock. This means we are now halfway through the hour. What number is your minute hand pointing to?

S: Six.

T: Whenever our minute hand points to the six, we say *thirty.* What time do you think it is now?

S: Eight thirty.

T: Yes! It's no longer eight o'clock. We are halfway through the hour, so we say it's eight thirty. (Display time to the half hour poster (Template 1). Draw attention to the top clock.) Now move the hands on your clock to match the top clock on my poster.

S: (Move hands to show nine o'clock.)

T: What time does this clock show?

S: Nine o'clock.

T: Slowly move your minute hand halfway around your clock. What is it pointing to now?

S: (Move the minute hand halfway around the clock.) Six!

T: What time is it now?

S: Nine thirty.

T: Look at the clocks on my poster. What is different about the hands on the top clock compared to the hands on the bottom clock?

S: The top clock's minute hand is pointing up, and the bottom clock's minute hand is pointing down. → The hour hand on the top clock is pointing to nine, and the hour hand on the bottom clock is in between the nine and ten.

T: The top clock shows nine o'clock. The bottom clock shows half an hour later, nine thirty. This means the minute hand went halfway around the clock. (Point to the red shaded section of the bottom clock.) The hour hand moved halfway to the next hour. (Point to the blue shaded section of the bottom clock.) Which hand moved less?

S: The hour hand.

T: Yes, the hour hand only needs to move halfway to the next hour, 10. The minute hand had to move halfway around all the minutes on the clock so it would be back to the top for the start of the next hour.

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

The color shading helps students understand what is happening as the hands move around the clock. It highlights the relationship between the minute and hour hands: each time the minute hand travels 60 minutes around the clock, an hour has passed.

Continue to practice telling time to the half hour. Display the following times on the teacher clock, and have partners identify the time displayed: one thirty, ten thirty, four thirty, and seven thirty. Then state the following times and have students display them on their clocks: eleven thirty, two thirty, twelve thirty, and three thirty.

Note: On the Time to the Half Hour poster (Template 1), the red shaded section of the bottom clock represents the amount the minute hand turned between 9:00 and 9:30. The blue shaded section of the bottom clock shows the amount the hour hand turned between 9:00 and 9:30. It will be helpful to print the poster in color in order to draw attention to these shaded areas.

Part 2: Time Mix and Match

Cut apart the time cards (Template 2) and distribute one card to each student. Ensure that each student has a card that matches the time on another student's card. If there is an odd number of students, the teacher should also take a time card.

Students walk around the room until a signal is given (e.g., clap, snap, or whistle). Each student silently tries to find another student with a matching time. For example, one student has a card reading *four thirty,* and another student has an analog clock displaying four thirty. When students find each other and form a pair, they sit together. If there are students without matches, have these students share their times with the class. Allow students to revise matches as needed until all students have been paired up correctly.

Shuffle cards and repeat the activity as time allows.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted time.

Ensure students recognize that Problem 2 contains a mix of times to the hour and half hour.

Student Debrief (12 minutes)

Lesson Objective: Tell time to the half hour using analog clocks.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- What is the same about all the clocks in Problem 1? What is different?
- Look at the clocks for Problem 1. Why are the hour hands in between two numbers?
- Look at Problem 2. Where did you put the hour hand to show five thirty? Is the placement of the hour hand just before, just after, or straight toward the five?
- Look at Problem 2. How is the hour hand in the top-left clock different from the hour hand in the bottom-left clock?
- Look back at your Problem Set. Which times did you know right away? Why? Which times took longer to figure out? Why?
- Name the parts of the clock we discussed today. (Hour hand, minute hand.)

Exit Ticket (5 minutes)

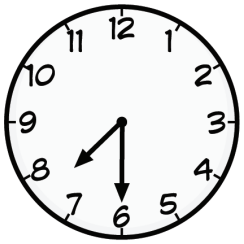
After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

Notes:

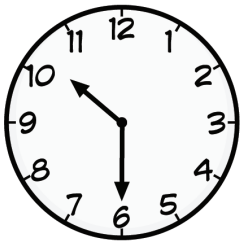
- The Exit Ticket contains a mix of time to the hour and half hour.
- For Problem 1, students may record either the number word or numeral to represent the time.

Name _____ Date _____

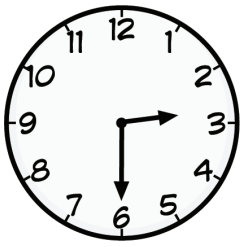
1. Draw a line from the clock to its matching time.



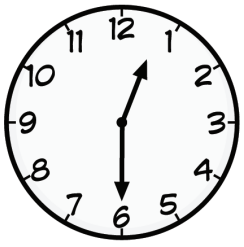
two thirty



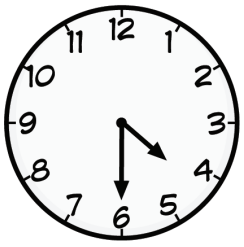
four thirty



seven thirty

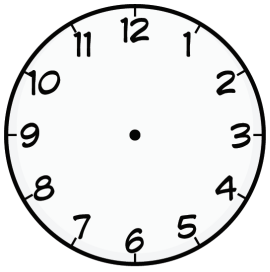


ten thirty

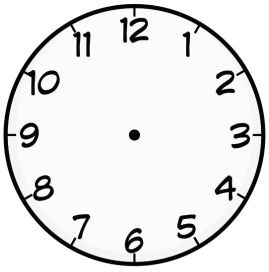


twelve thirty

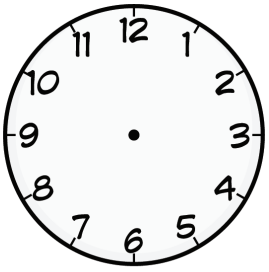
2. Draw the clock hands to show each time.



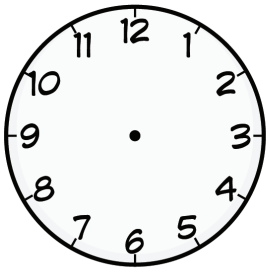
five thirty



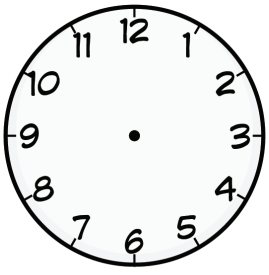
one o'clock



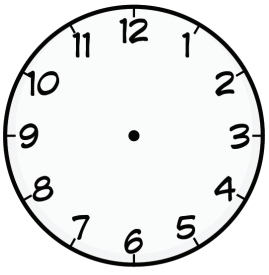
three thirty



six o'clock

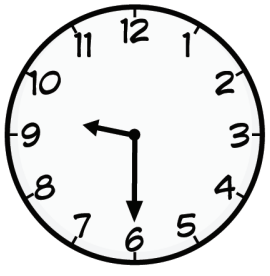


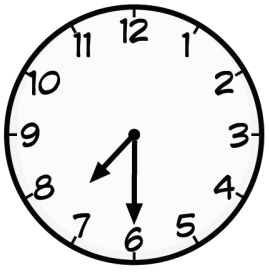
eleven thirty



nine o'clock

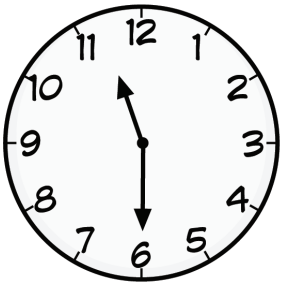
3. Read the clock. Name an activity you might be doing at this time on the line.



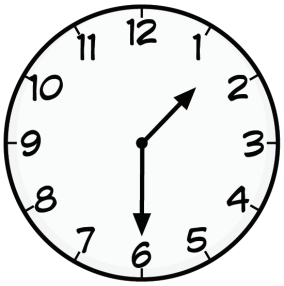


Name _____ Date _____

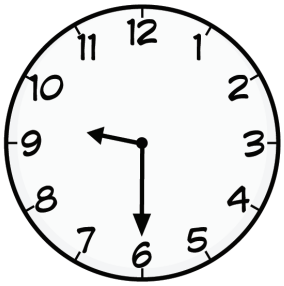
1. Write the time to match each clock.



_____ thirty

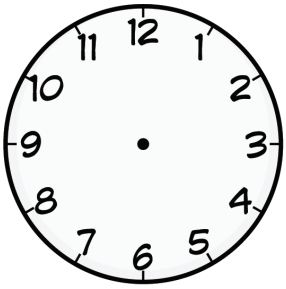


_____ thirty

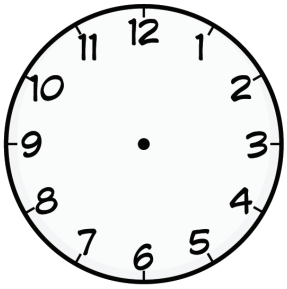


_____ thirty

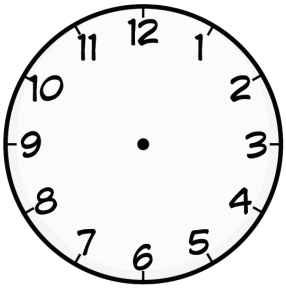
2. Draw hands on the clock to show the time.



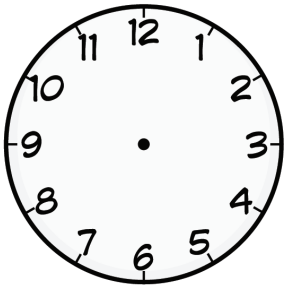
five o'clock



ten thirty



two thirty



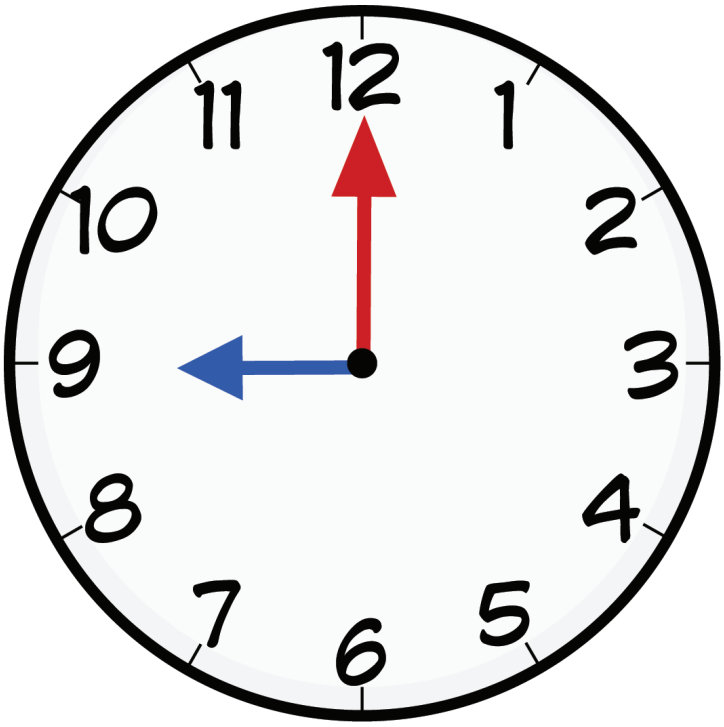
twelve o'clock

Race to the Top!

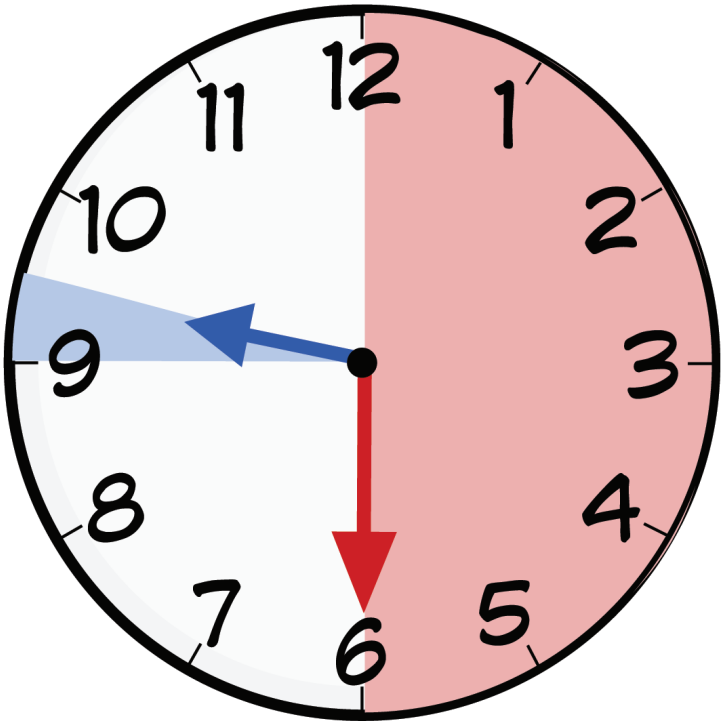
2	3	4	5	6	7	8	9	10	11	12

race to the top

nine o'clock



nine thirty



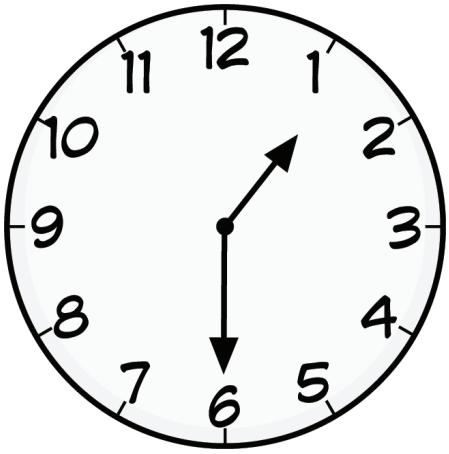
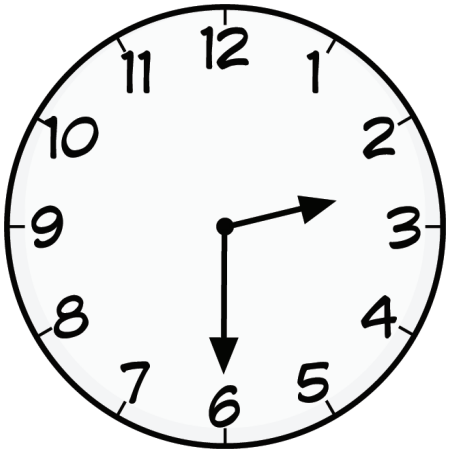
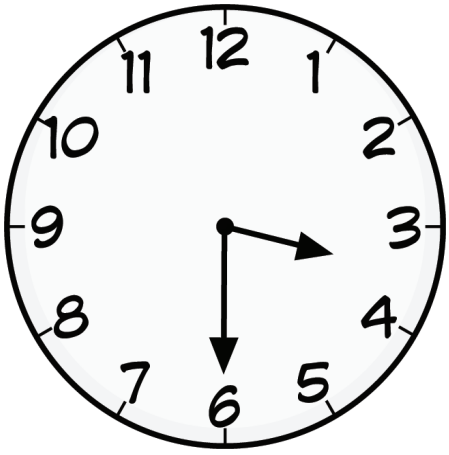
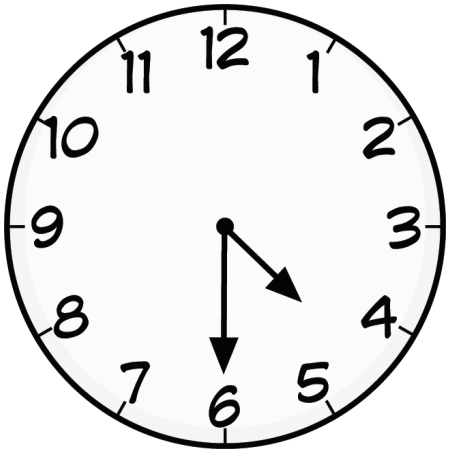
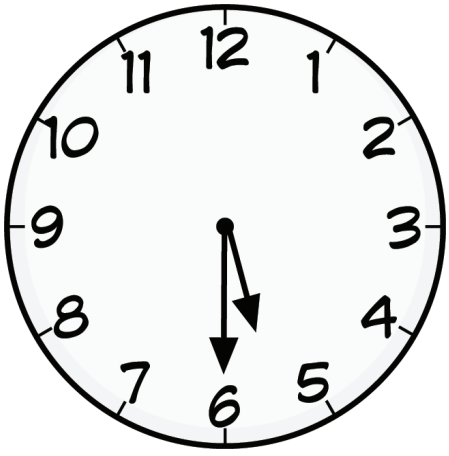
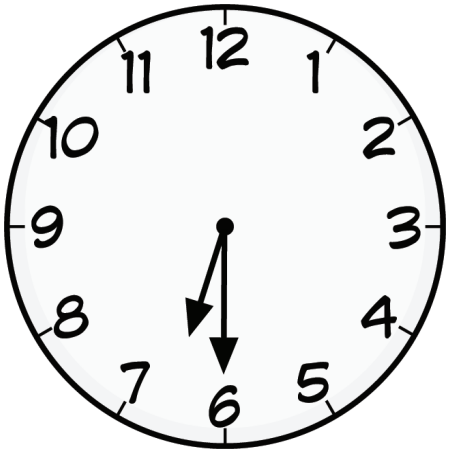
time to the half hour poster

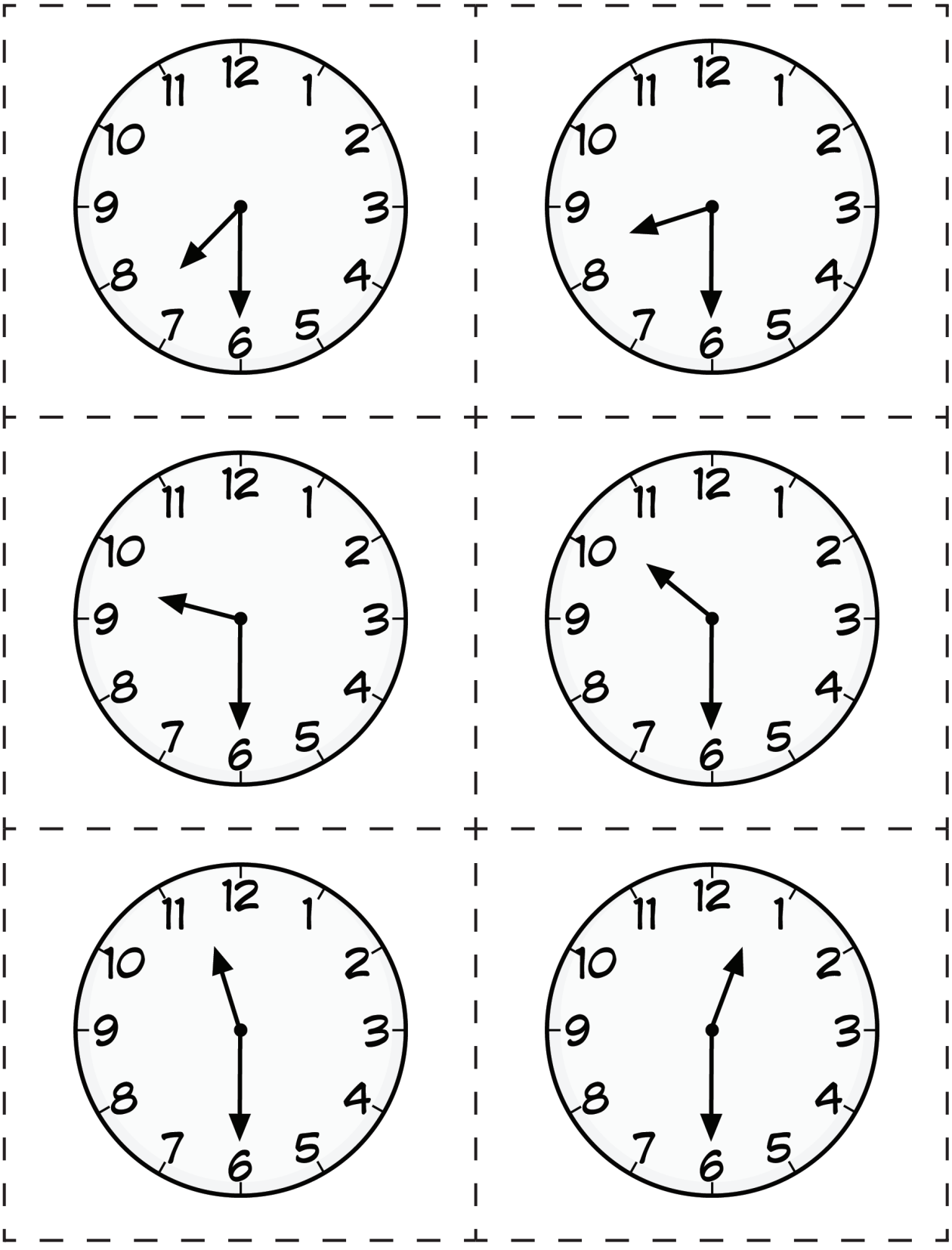
one thirty	two thirty
three thirty	four thirty
five thirty	six thirty

time cards

Cut apart cards prior to lesson.

seven thirty	eight thirty
nine thirty	ten thirty
eleven thirty	twelve thirty


12 1 2 3 4 5 6 7 8 9 10 11

Application Problem

Students show 8:00 on their clocks; Times Nelly might wake up will vary.

Problem Set

1. seven thirty

   ten thirty

   two thirty

   twelve thirty

   four thirty

2. Top row:

   Hour hand points halfway between 5 and 6; minute hand points to 6

   Hour hand points to 1; minute hand points to 12

   Hour hand points halfway between 3 and 4; minute hand points to 6

   Bottom row:

   Hour hand points to 6; minute hand points to 12

   Hour hand points halfway between 11 and 12; minute hand points to 6

   Hour hand points to 9; minute hand points to 12

3. Answers will vary.

Exit Ticket

1. 11 (or eleven)

   1 (or one)

   9 (or nine)

2. First row:

   Hour hand points to 5; minute hand points to 12

   Hour hand points halfway between 10 and 11; minute hand points to 6

   Second row:

   Hour hand points halfway between 2 and 3; minute hand points to 6

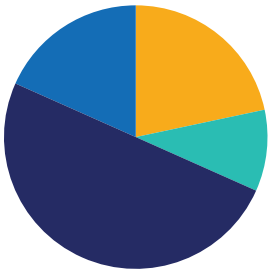
   Hour hand points to 12; minute hand points to 12

Lesson 25

Objective: Tell time to the hour and half hour using digital clocks.

Suggested Lesson Structure

Fluency Practice	(13 minutes)
Application Problem	(6 minutes)
Concept Development	(30 minutes)
Student Debrief	(11 minutes)
Total Time	**(60 minutes)**



Fluency Practice (13 minutes)

- Race to the Top **1.5D, 1.5G** (5 minutes)
- Count by Twos, Fives, and Tens **1.5B** (6 minutes)
- Count by Tens with Coins **1.3A, 1.4C, 1.5C** (2 minutes)

Race to the Top (5 minutes)

Materials: (S) 2 dice per pair of students, personal white board, crayon, race to the top (Lesson 24 Fluency Template)

Arrange students in pairs. Each student colors on their own copy of race to the top (Lesson 24 Fluency Template), trying to be the first to color an entire column.

Students take turns rolling the dice, saying a matching addition sentence, and coloring in a square above the sum on the race to the top graph. The game ends when time runs out or one of the columns reaches the top of the graph.

Count by Twos, Fives, and Tens (6 minutes)

Materials: (S) 100 connecting cubes per pair

Note: This fluency reviews group counting by using objects.

Distribute sets of 100 connecting cubes to pairs of students. Ask some pairs to count by twos to find the total, some pairs to count by fives, and some pairs to count by tens. When pairs of students are finished counting, ask them to compare their totals, which should all be 100.

Count by Tens with Coins (2 minutes)

Materials: (T) Enlarged pennies and dimes (Fluency Template)

Note: This activity reviews counting by tens from zero and from a given number.

Print and prepare 10 enlarged dimes and 4 enlarged pennies. Sit in a circle with students. Lay out and remove dimes to direct students to count forward and backward by tens within 100. Then lay out 4 pennies and add and remove dimes to count by tens, starting at 4 (e.g., 4, 14, 24, …).

Application Problem (6 minutes)

Materials: (S) Clock with gears

Tierra just put new batteries in her wall clock. Now she needs to reset the time to show 3:30. Help Tierra by showing 3:30 on your clock. Explain (to a neighbor) how you know the clock shows 3:30.

Extension: Tierra checks the clock again at 5:30, 7:30, and 10:30. Show each time on your clock.

Note: This problem reviews telling time to the half hour within a real-life context.

Concept Development (30 minutes)

Materials: (T) Same and different (Template 1), digital clock cards (Template 2)
(S) Student clock with gears

Note: Make a copy of the digital clock cards and cut the set apart.

Part 1: Reading a Digital Clock

T: Over the past couple of days, we have been telling time to the hour and half hour. Why do we need to know how to tell time?

S: So we aren't late to school. → So we know when to meet a friend or family member.

T: Clocks are important in daily life. They help us stay on schedule and get to places on time. Clocks are everywhere. Talk to your partner about places where you have seen clocks.

S: (Discuss with a partner.)

T: Where have you seen a clock?

S: In the classroom. → On the microwave. → On my mom's phone.

T: Yes. Clocks are everywhere, but not all clocks look the same. (Display the Same and Different template.) Look at these two clocks. How are they the same?

S: They both tell time. → The times both end with *o'clock* (ten o'clock and one o'clock).

T: How are they different?

S: One clock has hands and numbers. The other clock only has numbers.

T: The clock on the right is called an analog clock. It has a hand that tells the hour and another hand that tells the minutes past that hour. The clock on the phone is a digital clock. (Point to the numbers to the left of the colon.) The numbers on the left tell the hour. The numbers on the left of this clock tell us the hour is 10. (Point to the numbers to the right of the colon.) The numbers on the right tell the minutes past the hour. The numbers on this clock tell us it is zero minutes past the hour. We read this as *10 o'clock*.

T: Let's practice telling time on a digital clock. I will show you a clock. Decide what time the clock displays and represent the matching time on your clock with gears. (Display the digital clock card showing 4:00.)

S: (Represent four o'clock on a clock with gears.)

T: Look at this next clock. Decide what time the clock displays and represent the time on your clock with gears. (Display the digital clock card showing 7:30.)

S: (Represent seven thirty on a clock with gears.)

T: What time does this clock show?

S: Seven thirty.

T: Yes! (Point to the digits to the left of the colon.) These numbers tell us the hour is seven. (Point to the digits to the right of the colon.) These numbers tell us it is 30 minutes after the hour. We read this as *seven thirty*.

Continue showing students digital clock cards one at a time. For each time, have students represent the matching time on their clock with gears.

Part 2: Quiz around the Room

Note: Distribute one of the digital clock cards you used in Part 1 to each student.

Students walk around the room. When a signal is given, students stand with a partner. Each partner takes a turn displaying their digital clock card and quizzing the other partner on the time. When finished, students find a new partner to quiz.

NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Quiz around the Room provides an opportunity for peer interaction and gives students an opportunity to choose who to pair up with. Working with a partner and student choice both support students in telling time to the hour and half hour.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted time.

Student Debrief (11 minutes)

Lesson Objective: Tell time to the hour and half hour using digital clocks.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

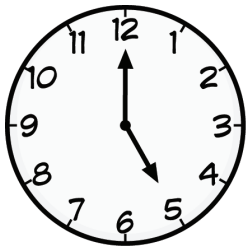
- Look at Problem 1. How are the clocks on the left similar to the clocks on the right? How are they different?
- Look at Problem 2. How did you record each time? What did you write for the hour? What did you write for the minutes?
- Look at Problem 3. Which words did you use to represent each time? Which words told the hour? Which words told the minutes?
- Look back at your Problem Set. Which times did you know right away? Why? Which time times took longer to figure out? Why?
- Besides our classroom, where else have you seen a clock, including a digital clock?
- How are digital clocks the same as analog clocks? How are they different?

Exit Ticket (5 minutes)

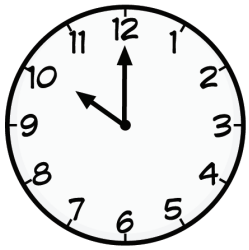
After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to students.

Name _____ Date _____

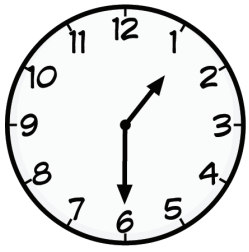
1. Draw a line from the clock to its matching time.



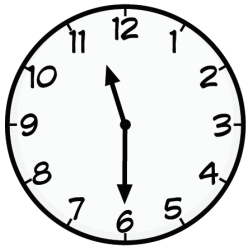
1:30



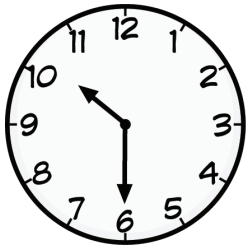
5:00



10:30



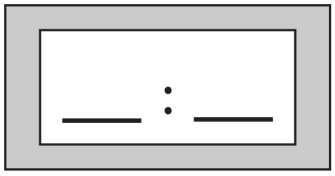
10:00



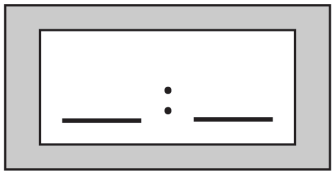
11:30

2. Write the time on each clock.

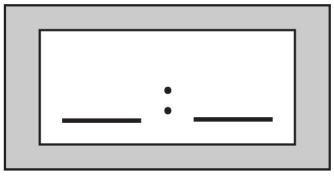
seven o'clock



nine thirty



twelve o'clock

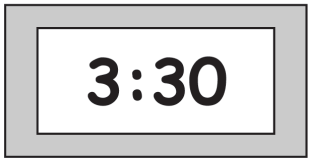


3. Write words to match the time shown on the clock.

_____

_____

_____

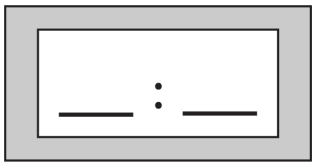


_____

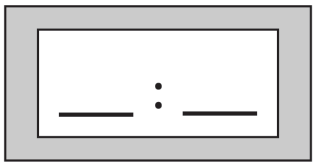
Name _____ Date _____

1. Write the time on each clock.

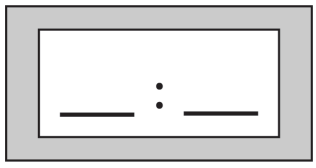
six thirty



twelve o'clock



one thirty

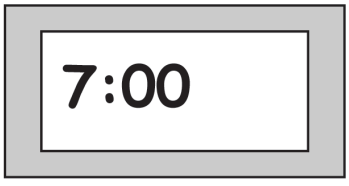


2. Write words to match the time shown on the clock.

_____

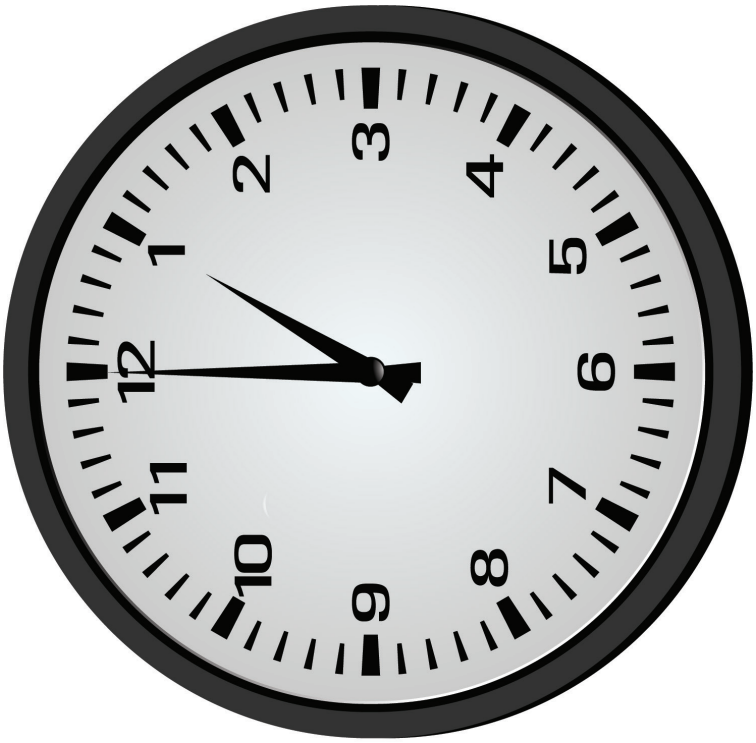
_____

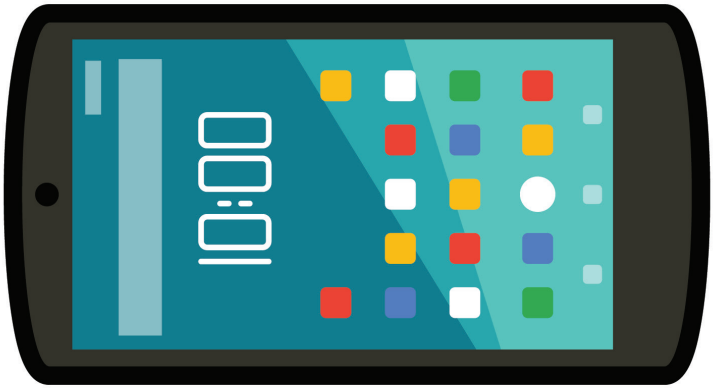
3. Read each clock. Name an activity you might be doing at this time on the line.



_____ _____

enlarged pennies and dimes





same and different

1:00	2:00
3:00	4:00
5:00	6:00

digital clock cards

Cut apart prior to lesson.

7:00	8:00
9:00	10:00
11:00	12:00

1:30

2:30

3:30

4:30

5:30

6:30

7:30	8:30
9:30	10:30
11:30	12:30

Application Problem

Students show correct times (3:30, 5:30, 7:30, and 10:30) on their clocks.

Problem Set

1. 5:00
   10:00
   1:30
   11:30
   10:30
2. 7:00
   9:30
   12:00
3. Four thirty
   Two o'clock
   Eight thirty
   Three thirty

Exit Ticket

1. 6:30
   12:00
   1:30
2. Nine thirty
   Four o'clock
3. Answers will vary.

Post-Test and Rubric

Grade 1

ADSY

Name _____ Date _____

Topic A: Problem Solving

Circle the letter of the correct answer.

1. Noah counts 7 ducks in the pond. Destiny counts 4 ducks in the grass. Which number sentence represents the number of ducks that Noah and Destiny count altogether?

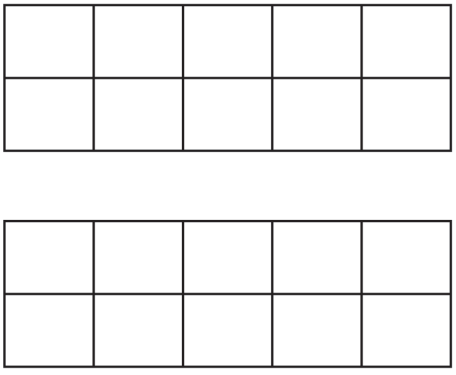
   A 7 - 4 = 3

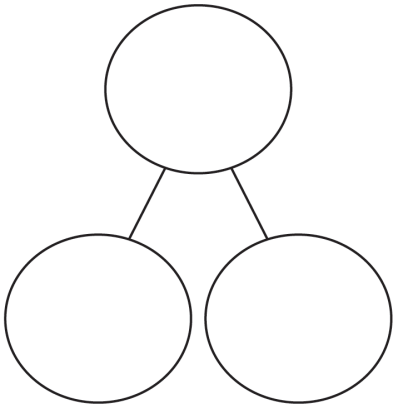
   B 7 + 7 = 14

   C 8 = 4 + 4

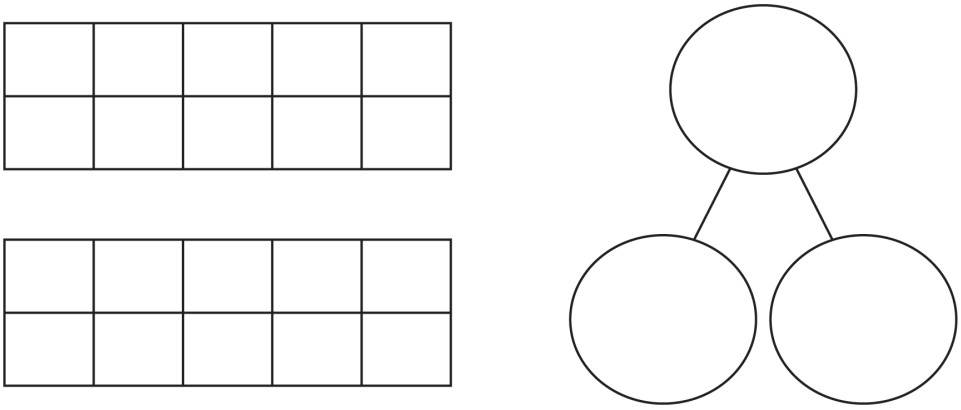
   D 11 = 7 + 4

2. Elena makes 12 sand castles at the beach. The waves wash away 5 of the sand castles. Use the ten-frames or number bond to represent this problem.





3. Jamal visits the Texas Panhandle where prairie dogs live in underground holes. Jamal counts 16 prairie dogs out of their holes. Then some prairie dogs go back underground. Now there are 5 prairie dogs out of their holes. How many prairie dogs went back underground? Use the ten-frames or number bond to solve the problem. Write your answer on the blank line.

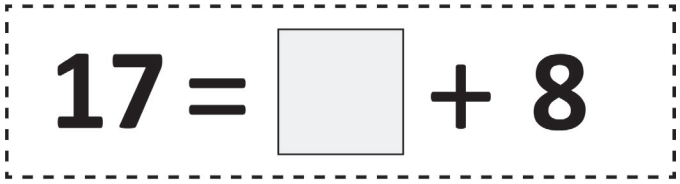


_____ prairie dogs went back underground.

4. In general, a fox can live up to 6 years, and a mountain lion can live up to 13 years. How many less years can a fox live compared to a mountain lion? Draw pictures to solve the problem. Write your answer on the blank line.

Typically a fox lives _____ years less than a mountain lion.

5. Lara has this number sentence.



She writes a problem to match:

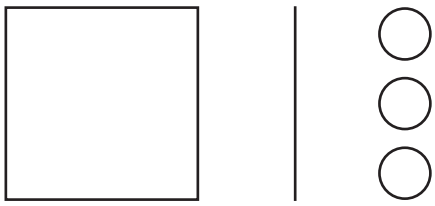
Lara eats 17 grapes in all. First she eats some red grapes. Then she eats 8 green grapes. How many red grapes does Lara eat?

Solve the problem. Write your answer on the blank line. Show your work using pictures, numbers, or words.

Lara eats _____ red grapes.

Topic B: Develop and Apply Place Value Understanding

1. The place value drawing represents a number.



What is this number in expanded form?

2. Place and label the numbers 81, 108, 101, and 88 on the open number line. Then use your number line to write the numbers in order from least to greatest.

_____ _____ _____ _____

3. Mario has 4 pencils in his supply bag. He buys 20 more pencils from the store. How many pencils does Mario have now? Make a place value drawing or use an open number line to show your work. Write your answer on the blank line.

Mario now has _____ pencils.

4. Write the missing numbers as you count by fives. Then write the value of these coins on the blank line.

The value is _____ cents.

Topic C: Geometry and Measurement

Circle the letter of the correct answer.

2. A group of four shapes is shown.

Which statement about all of the shapes in this group appears to be true?

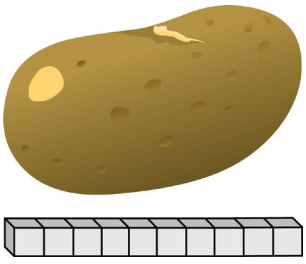
A They all have equal sides.

B They all have curved sides.

C They all have square corners.

D They all have 4 or more corners.

3. Jonah uses cubes to measure the length of a potato as shown.

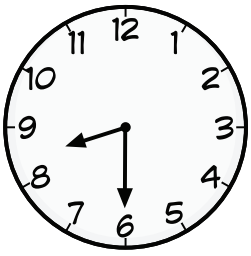


How long is the potato? Write your answer on the blank line. Then explain how you know.

The potato is _____ cubes long.

Explanation:

4. Draw a line from each clock to its matching time.



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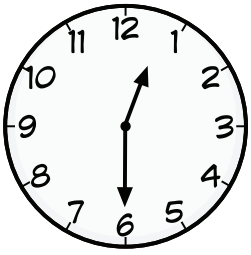

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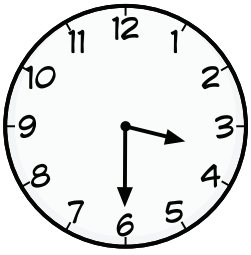

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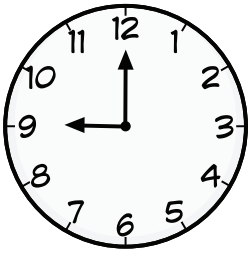


8:30

Standards Addressed

Numbers and Operations

The student is expected to:

1.2C use objects, pictures, and expanded and standard forms to represent numbers up to 120;

1.2F order whole numbers up to 120 using place value and open number lines;

1.3A use concrete and pictorial models to determine the sum of a multiple of ten and a one-digit number in problems up to 99;

1.3B use objects and pictorial models to solve word problems involving joining, separating, and comparing sets within 20 and unknowns as any one of the terms in the problem such as 2 + 4 = ___; 3 + ___ = 7; and 5 = ____ − 3;

1.3F generate and solve problem situations when given a number sentence involving addition or subtraction of numbers within 20;

1.4C use relationships to count by twos, fives, and tens to determine the value of a collection of pennies, nickels, and/or dimes.

Algebraic Reasoning

The student is expected to:

1.5D represent word problems involving addition and subtraction of whole numbers up to 20 using concrete and pictorial models and number sentences.

Geometry and Measurement

The student is expected to:

1.6A classify and sort regular and irregular two-dimensional shapes based on attributes using informal geometric language;

1.7A use measuring tools to measure the length of objects to reinforce the continuous nature of linear measurement;

1.7E tell time to the hour and half hour using analog and digital clocks.

Evaluating Student Learning Outcomes

A Progression Toward Proficiency chart is provided for both the Pre-Test and Post-Test. This chart describes steps that illuminate the gradually increasing understandings that students develop on their way to proficiency. In this chart, progress is presented from left to right. The learning goal for students is to exhibit

evidence of solid reasoning. The progression helps teachers and students identify and celebrate what students can do now and what they need to work on next. Teachers can also choose to use an assessment in a summative manner by following the scoring guidance provided previously in the Approach to Assessments front matter.

A Progression Toward Proficiency				
Assessment Task Item and Standards Addressed	**Little evidence of reasoning without a correct answer.**	**Evidence of some reasoning without a correct answer.**	**Evidence of some reasoning with a correct answer or evidence of solid reasoning with an incorrect answer.**	**Evidence of solid reasoning with a correct answer.**
Topic A				
1 **1.5D**	Option A is incorrect. The student may or may not understand how to represent word problems involving addition of whole numbers up to 20 using number sentences. The student may have misinterpreted the problem as a subtraction situation.			
	Option B is incorrect. The student may or may not understand how to represent word problems involving addition of whole numbers up to 20 using number sentences. The student may have tried to solve the problem using doubles facts but did not finish finding the total number of ducks counted.			
	Option C is incorrect. The student may or may not understand how to represent word problems involving addition of whole numbers up to 20 using number sentences. The student may have tried to solve the problem using doubles facts but did not finish finding the total number of ducks counted.			
	Option D is correct.			

A Progression Toward Proficiency				
2 **1.5D**	The student does not show understanding of representing word problems using pictorial models.	The student shows some understanding of representing word problems using pictorial models but does not use the amounts described in the word problem.	The student has an incomplete or partially correct pictorial model.	The student draws a complete and correct pictorial model to show 12 – 5. Accept various representations, such as 12 circles or pictures on the ten-frames, with 5 crossed out, or a number bond drawing that shows a total of 12, broken into two parts (5 and 7).
3 **1.3B**	The student does not demonstrate understanding of using pictorial models to represent 16 – 11 = 5 and is not able to solve word problems involving separating sets within 20.	The student shows some understanding of using pictorial models to represent 16 – 11 = 5 but is not able to solve word problems involving separating sets within 20.	The student has the correct answer but has an incomplete or partially correct pictorial model. OR The student has the correct answer but shows a different strategy other than drawing a pictorial model (e.g., explains with words). OR The student has a complete and correct pictorial model to show 16 – 11 = 5 but does not write the correct answer.	The student: ▪ Draws a complete and correct pictorial model to show 16 – 11 = 5. Accept various representations, such as 16 circles or pictures on the ten-frames, with 11 crossed out to leave 5, or a number bond drawing that shows a total of 16, broken into two parts (11 and 5). ▪ Correctly answers 11.

A Progression Toward Proficiency				
4 **1.3B**	The student does not demonstrate understanding of using pictorial models to represent and solve word problems involving comparing sets within 20.	The student shows some understanding of using pictorial models to represent and solve word problems involving comparing sets within 20.	The student has the correct answer but has an incomplete or partially correct pictorial model. OR The student has the correct answer but shows a different strategy other than drawing a pictorial model (e.g., explains with words). OR The student has a complete and correct pictorial model to show 13 − 6 = 7 but does not write the correct answer.	The student: ▪ Draws a complete and correct pictorial model to show 13 − 6 = 7. Accept various representations, such as a row of 6 circles and a row of 13 circles, with lines matching 6 pairs of circles. ▪ Correctly answers 7.
5 **1.3F**	The student uses incorrect reasoning and is unable to answer the question.	The student uses incorrect reasoning that leads to an incorrect answer.	The student uses correct reasoning but makes a calculation error that leads to an incorrect answer.	The student: ▪ Uses a valid strategy to solve the addition problem. ▪ Correctly answers 9.

A Progression Toward Proficiency				
Topic B				
1 **1.2C**	The student does not demonstrate understanding of how to represent numbers in expanded form.	The student demonstrates understanding that the number represented is 113 but is not able to write any part of the number in expanded form.	The student demonstrates understanding that the number represented is 113 but does not completely write the number in expanded form.	The student correctly writes 113 in expanded form: 113 = 100 + 10 + 3.
2 **1.2F**	The student does not demonstrate understanding of ordering whole numbers up to 120 using open number lines.	The student shows some understanding of ordering whole numbers up to 120 using open number lines.	The student correctly orders the numbers but has an incomplete or partially correct open number line. OR The student has a complete and correct open number line but does not correctly order the numbers.	The student: ▪ Correctly places the numbers on the open number line. ▪ Correctly orders the numbers: 81, 88, 101, 108.
3 **1.3A**	The student does not demonstrate understanding of using pictorial models to solve addition problems involving a multiple of 10 and a one-digit number.	The student shows some understanding of using pictorial models to solve addition problems involving a multiple of 10 and a one-digit number but is not able to solve the problem.	The student has the correct answer but has an incomplete or partially correct place value chart or open number line to support their work. OR The student has a complete and correct place value chart or open number line but does not write the correct answer.	The student: ▪ Demonstrates understanding of using either a place value drawing or an open number line to solve the addition problem. ▪ Correctly answers 24.

A Progression Toward Proficiency				
4 **1.4C**	The student does not demonstrate understanding of using relationships to count by fives to determine the value of a collection of nickels.	The student shows some understanding of using relationships to count by fives but is not able to determine the value of a collection of nickels.	The student has the correct answer but has incomplete or partially correct work to write the missing numbers. OR The student completely and correctly writes the missing numbers but does not write the correct answer.	The student: ▪ Correctly writes the missing numbers: 10, 15, 20, 25, 30, 35, 40, 45. ▪ Correctly answers 45.

Topic C	
1 **1.6A**	Option A is correct.
	Option B is incorrect. The student may or may not understand how to sort regular two-dimensional shapes based on attributes using informal geometric language. The student may not know the meaning of curved sides.
	Option C is incorrect. The student may or may not understand how to sort regular two-dimensional shapes based on attributes using informal geometric language. The student may not know the meaning of square corners, or the student may have only looked at the first and fourth shapes in the group.
	Option D is incorrect. The student may or may not understand how to sort regular two-dimensional shapes based on attributes using informal geometric language. The student may not know the meaning of corners, or the student may have missed that the triangle only has three corners.

A Progression Toward Proficiency				
2 **1.7A**	The student does not demonstrate understanding of using cubes to measure the length of objects.	The student shows some understanding of using cubes to measure the length of objects but is not able to measure the object.	The student has the correct answer but has an incomplete or partially correct explanation. OR The student has a complete and correct explanation but does not write the correct answer.	The student: ▪ Demonstrates understanding of using cubes to measure the length of objects, such as lining up the cubes with no gaps from one end of the object to the other, then counting the number of cubes used. ▪ Correctly answers 10.
3 **1.7E**	The student correctly matches 0 pairs of clocks.	The student correctly matches 1 or 2 pairs of clocks.	The student correctly matches 3 pairs of clocks.	The student correctly matches all 4 pairs of clocks: 8:30, 12:30, 3:30, and 9:30.

Name Jack Date

Topic A: Problem Solving

Circle the letter of the correct answer.

1. Noah counts 7 ducks in the pond. Destiny counts 4 ducks in the grass. Which number sentence represents the number of ducks that Noah and Destiny count altogether?

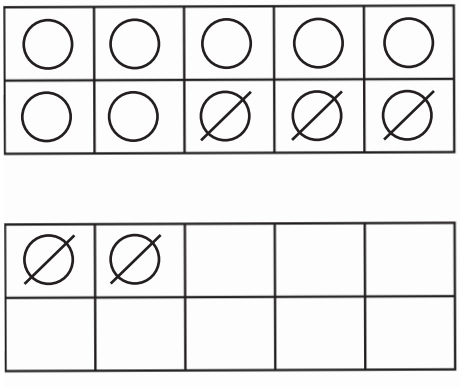
   A 7 - 4 = 3

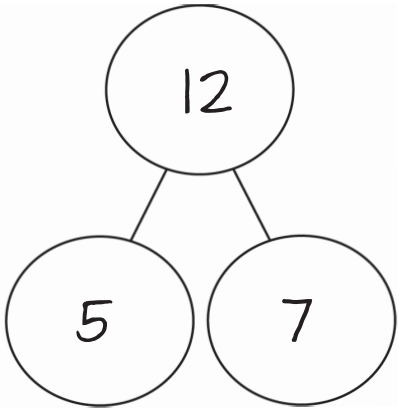
   B 7 + 7 = 14

   C 8 = 4 + 4

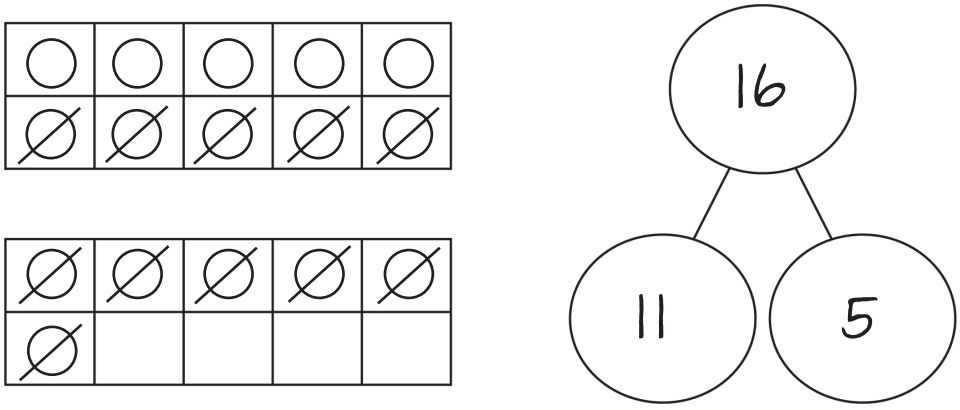
   (**D**) 11 = 7 + 4

2. Elena makes 12 sand castles at the beach. The waves wash away 5 of the sand castles. Use the ten-frames or number bond to represent this problem.





3. Jamal visits the Texas Panhandle where prairie dogs live in underground holes. Jamal counts 16 prairie dogs out of their holes. Then some prairie dogs go back underground. Now there are 5 prairie dogs out of their holes. How many prairie dogs went back underground? Use the ten-frames or number bond to solve the problem. Write your answer on the blank line.

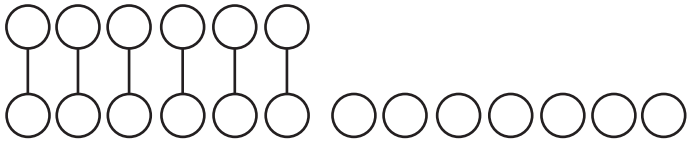


11 prairie dogs went back underground.

4. In general, a fox can live up to 6 years, and a mountain lion can live up to 13 years. How many less years can a fox live compared to a mountain lion? Draw pictures to solve the problem. Write your answer on the blank line.

fox

mountain lion



Typically a fox lives 7 years less than a mountain lion.

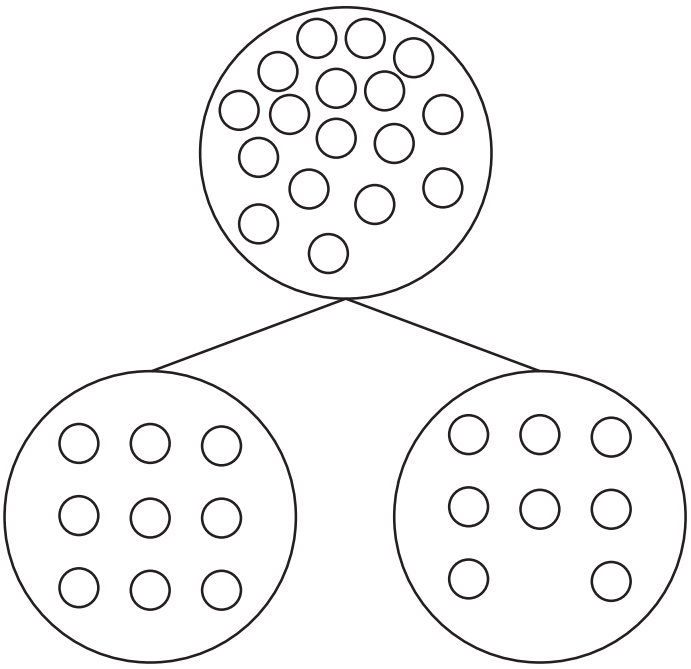
5. Lara has this number sentence.

$$17 = \square + 8$$

She writes a problem to match:

Lara eats 17 grapes in all. First she eats some red grapes. Then she eats 8 green grapes. How many red grapes does Lara eat?

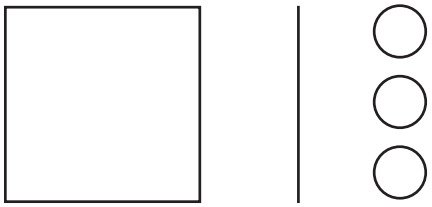
Solve the problem. Write your answer on the blank line. Show your work using pictures, numbers, or words.



Lara eats 9 red grapes.

Topic B: Develop and Apply Place Value Understanding

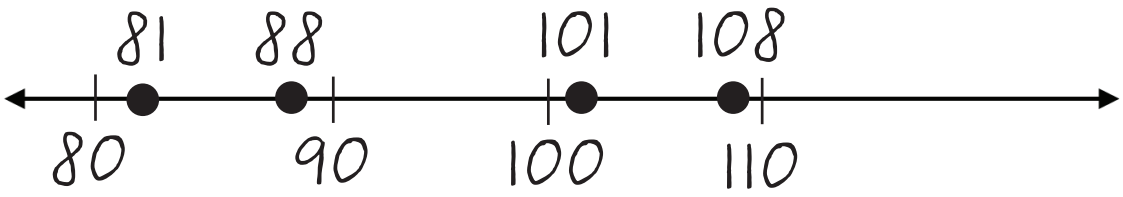
1. The place value drawing represents a number.



What is this number in expanded form?

$100 + 10 + 3 = 113$

2. Place and label the numbers 81, 108, 101, and 88 on the open number line. Then use your number line to write the numbers in order from least to greatest.



81 88 101 108

3. Mario has 4 pencils in his supply bag. He buys 20 more pencils from the store. How many pencils does Mario have now? Make a place value drawing or use an open number line to show your work. Write your answer on the blank line.

Tens	Ones
☐☐	☐☐☐☐

$20 + 4 = 24$

Mario now has 24 pencils.

4. Write the missing numbers as you count by fives. Then write the value of these coins on the blank line.


5


10


15


20


25


30


35


40


45

The value is 45 cents.

Topic C: Geometry and Measurement

Circle the letter of the correct answer.

1. A group of four shapes is shown.

Which statement about all of the shapes in this group appears to be true?

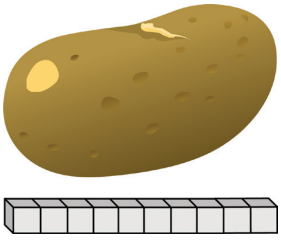
(A) They all have equal sides.

B They all have curved sides.

C They all have square corners.

D They all have 4 or more corners.

2. Jonah uses cubes to measure the length of a potato as shown.



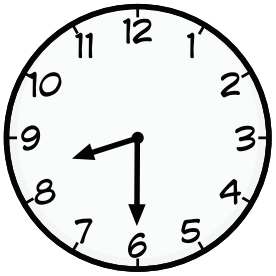
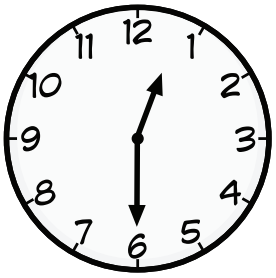
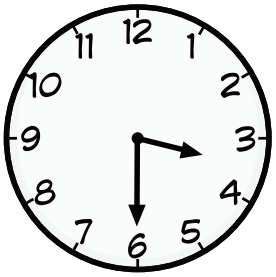
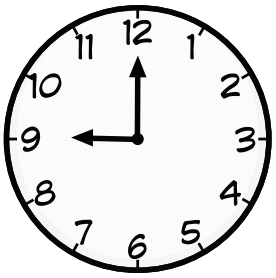
How long is the potato? Write your answer on the blank line. Then explain how you know.

The potato is 10 cubes long.

Explanation:

Since the cubes line up with the start and end of the potato, I counted the number of cubes.

3. Draw a line from each clock to its matching time.

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