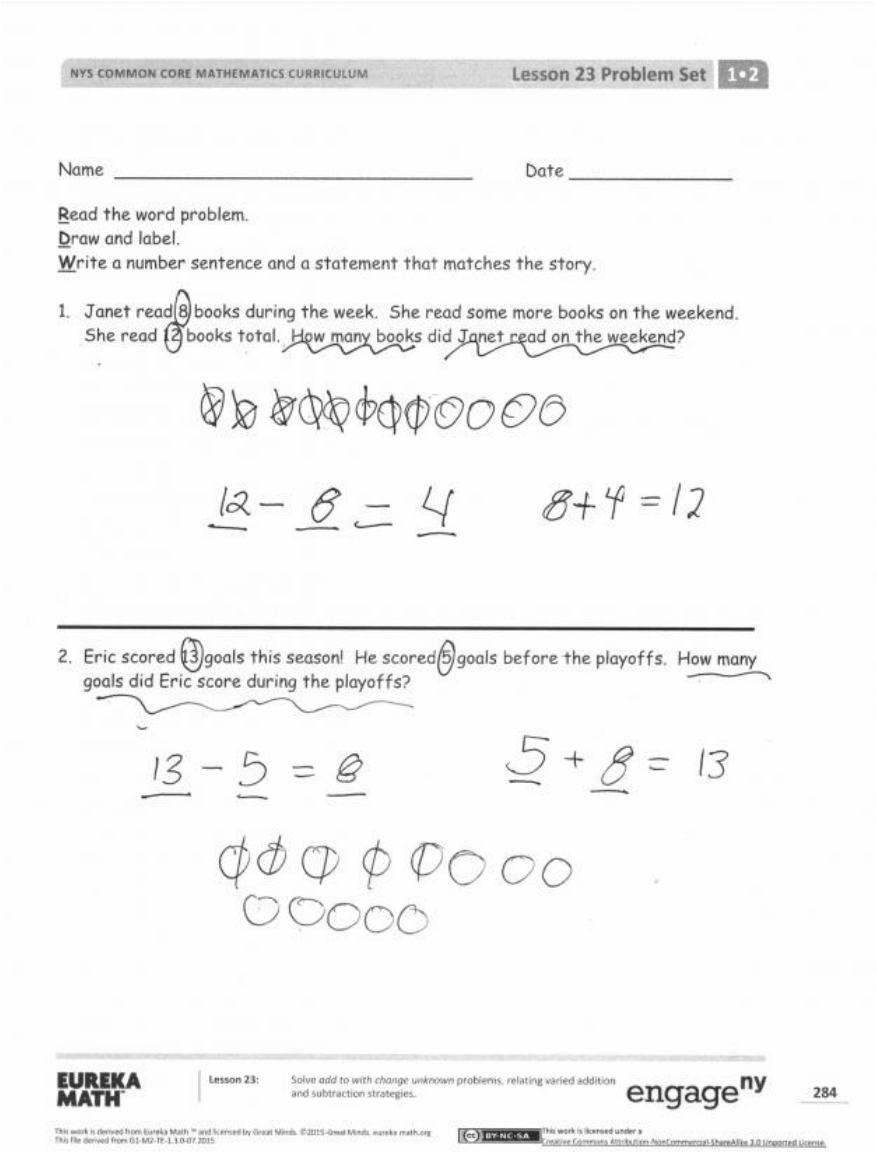
Task 1:



NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 23 Problem Set 1•2

Name _____ Date _____

Read the word problem.
Draw and label.
Write a number sentence and a statement that matches the story.

1. Janet read 8 books during the week. She read some more books on the weekend. She read 12 books total. How many books did Janet read on the weekend?

12 − 8 = 4 8 + 4 = 12

2. Eric scored 13 goals this season! He scored 5 goals before the playoffs. How many goals did Eric score during the playoffs?

13 − 5 = 8 5 + 8 = 13

EUREKA MATH Lesson 23: Solve *add to with change unknown* problems, relating varied addition and subtraction strategies. engage^ny 284

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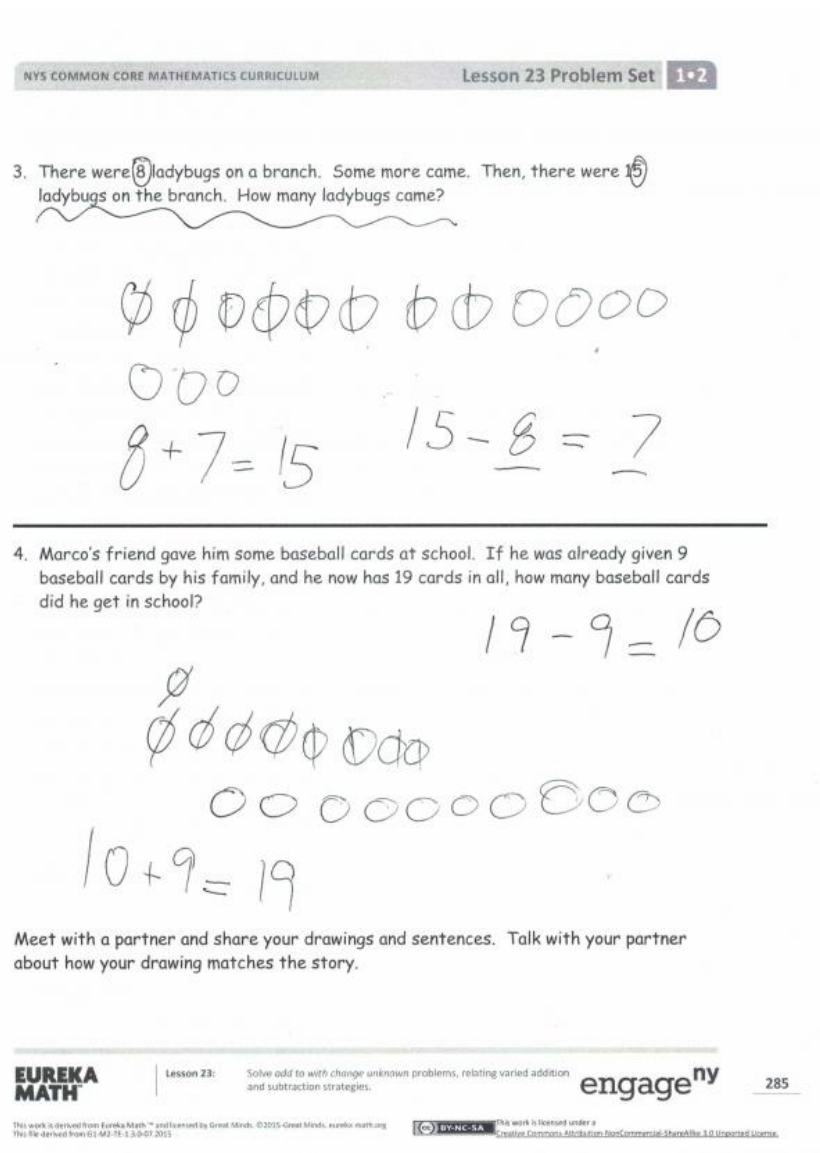

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 23 Problem Set 1•2

3. There were 8 ladybugs on a branch. Some more came. Then, there were 15 ladybugs on the branch. How many ladybugs came?

8 + 7 = 15 15 − 8 = 7

4. Marco's friend gave him some baseball cards at school. If he was already given 9 baseball cards by his family, and he now has 19 cards in all, how many baseball cards did he get in school?

19 − 9 = 10

10 + 9 = 19

Meet with a partner and share your drawings and sentences. Talk with your partner about how your drawing matches the story.

EUREKA MATH Lesson 23: Solve *add to with change unknown* problems, relating varied addition and subtraction strategies. engage^ny 285

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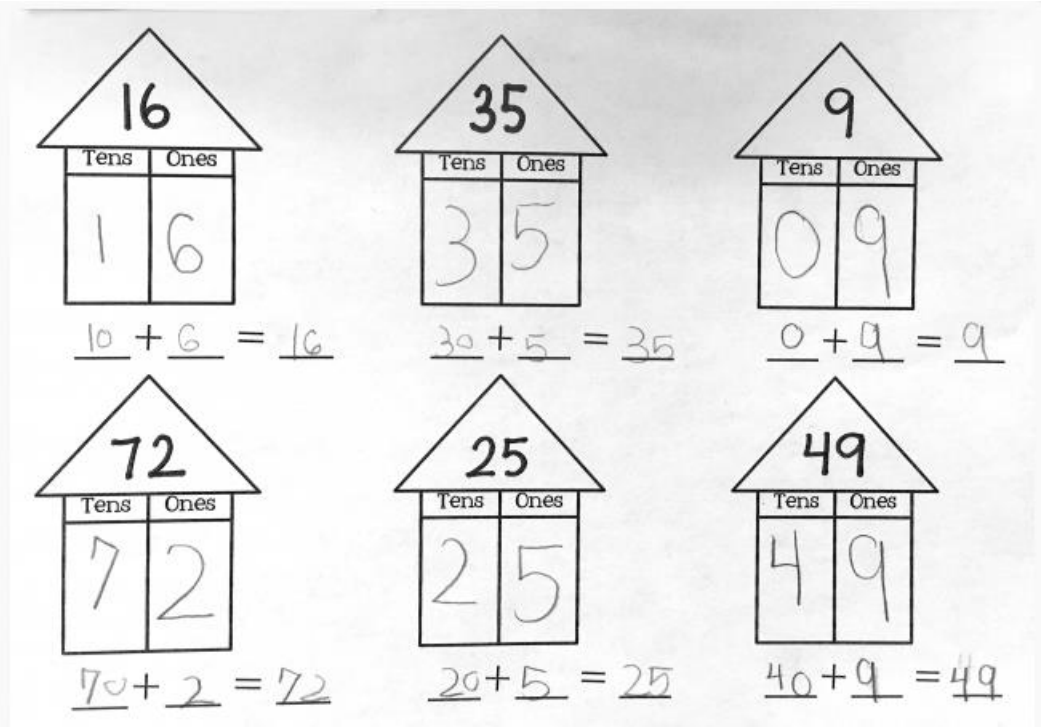
Task 2:



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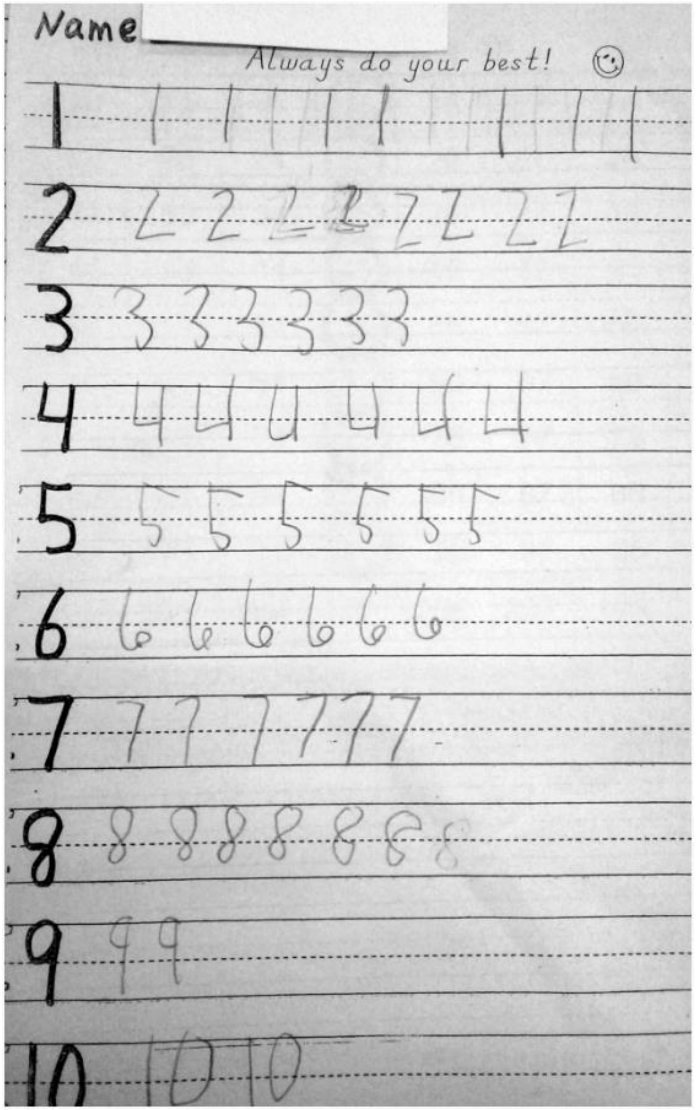
Task 3:



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Module 1: Section 1D: A Closer Look at the Standards for Mathematical Content: First Grade Sample Tasks

Participant Guide

Student Work Sample	Standard of Mathematical Content Focus	Degree of Alignment	Standards of Mathematical Practice (SMP) Focus
Sample Task 1: NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 23 Problem Set 1•2 Name _____ Date _____ Read the word problem. Draw and label. Write a number sentence and a statement that matches the story. 1. Janet read 8 books during the week. She read some more books on the weekend. She read 12 books total. How many books did Janet read on the weekend? 12 − 8 = 4 8 + 4 = 12 2. Eric scored 13 goals this season! He scored 5 goals before the playoffs. How many goals did Eric score during the playoffs? 13 − 5 = 8 5 + 8 = 13 EUREKA MATH Lesson 23: Solve add to with change unknown problems, relating varied addition and subtraction strategies. engage^ny 284	Can you identify the targeted content standard(s) for this task?	• None/Weak • Partial • Strong	Can you identify the targeted practice standard(s) for this task?

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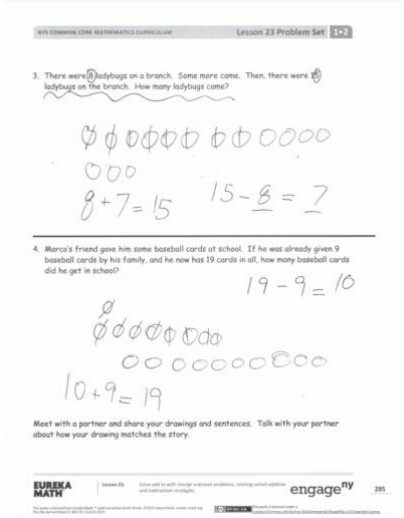
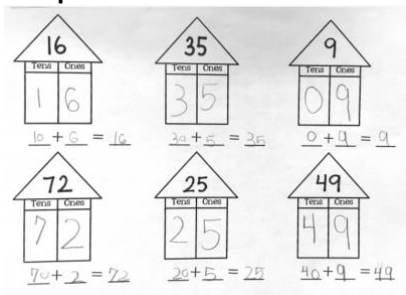
Student Work Sample	Standard of Mathematical Content Focus	Degree of Alignment	Standards of Mathematical Practice (SMP) Focus
			
Sample Task 2: 	Can you identify the targeted content standard(s) for this task?	• None/Weak • Partial • Strong	Can you identify the targeted practice standard(s) for this task?

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Student Work Sample	Standard of Mathematical Content Focus	Degree of Alignment	Standards of Mathematical Practice (SMP) Focus
Sample Task 3:	Can you identify the targeted content standard(s) for this task?	• None/Weak • Partial • Strong	Can you identify the targeted practice standard(s) for this task?

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Module 1: Section 1D: A Closer Look at the Standards for Mathematical Content: First Grade Sample Tasks

Facilitator's Guide

Throughout facilitation of this activity it will be important to remind participants:

- Use the grade-level overview to determine the relevant cluster(s) to look at more closely
- Questions regarding Standards for Mathematical Practices will only be indicated where specific practices were identified within the source of the task alignment. Additionally, emphasize to participants the statement at the end of each cluster within the *KAS for Mathematics*, "The identified mathematical practices, coherence connections, and clarifications are possible suggestions; however, they are not the only pathways."

Sample Task 1:

This assignment is strongly aligned to the standards.

Overview

First-grade students create drawings and equations to solve addition and subtraction word problems, and discuss their work with a partner. This assignment is strong because it requires students to interpret what each word problem is asking them to do and mathematically represent real-world situations in multiple ways.

Related Standards

We looked at how well the assignment aligned to the following standard:

KY.1.OA.1: Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart and comparing, with unknowns in all positions.

Why is this assignment strongly aligned?

This assignment is well-aligned with first-grade standard KY.1.OA.1. All four problems involve adding or subtracting within 20, as the standard requires. The standard also requires students to solve problems involving addition and subtraction situations with unknowns in all positions. All four problems in this assignment involve a "change unknown" situation, where students are given an initial and final amount and need to find how many things were added or subtracted to get from the initial to the final amount (for example: There were 8 ladybugs on a branch. Some more came. Then there were 15 ladybugs on the branch. How many ladybugs came?). This type of situation is appropriate for first grade, as kindergarten standard KY.K.OA.A.2 only tasks students with solving "result or total unknown" addition and subtraction problems (for example: There were 6 ladybugs on a branch. 3 more ladybugs came. How many ladybugs are on the branch now?). According to the standard, students should also represent addition and subtraction situations in different ways (drawings, objects, and equations). This assignment directs students to create drawings and "number sentences" (equations) for each problem. For additional information regarding the four problem types that should be addressed, see Table 1 in Appendix A within the *KAS for Mathematics*.

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This assignment builds students' application skills, as outlined in standard KY.1.OA.1. The standard calls for students to add and subtract in the context of word problems, and all four problems in this assignment are word problems that involve real-world situations. The standard also indirectly targets conceptual understanding since it requires students to represent addition and subtraction visually (drawings), physically (objects), and symbolically (equations). This assignment builds students' conceptual understanding by requiring them to represent the situations with drawings and equations, as well as verbally during their partner discussions.

Practice Standards

This assignment allows students to engage meaningfully with three mathematical practice standards and superficially with a fourth practice standard. Representing real-world topics—like the number of books—visually with drawings and symbolically with equations gives students the chance to engage with Mathematical Practice Standard #4 ("Model with mathematics"). Having students discuss their work with a partner gives them the chance to use mathematical language to explain how their visual representation matches the word problem, and thus engage with Mathematical Practice Standard #3 ("Construct viable arguments and critique the reasoning of others") and Mathematical Practice Standard #6 ("Attend to precision"). Interpreting what the word problems are asking them to do gives students the chance to engage with Mathematical Practice Standard #1 ("Make sense of problems and persevere in solving them"). However, this is a superficial opportunity because every word problem involves the same structure and "change unknown" situation; once students have interpreted the first problem, they know how to solve the remaining three problems.

Sample Task 2:

This assignment is partially aligned to the standards.

Overview

First-grade students decompose two-digit numbers into tens and ones and represent each number with an addition equation. This assignment is aligned with a first-grade standard but does not give students an adequate opportunity to build conceptual understanding.

Related Standards

We looked at how well the assignment aligned to the following standard:

KY.1.NBT.2: Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:

a. 10 can be thought of as a bundle of ten ones—called a "ten."
b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.
c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).

Why is this assignment partially aligned?

The content of this assignment is aligned with first-grade standard KY.1.NBT.2, which requires students to work with two-digit numbers, especially those between 20-99 (since students have already been introduced to 11-19 in Kindergarten through standard KY.K.NBT.1). Five of the six problems in this assignment appropriately involve two-digit numbers, with four of those between 20-99. The standard also requires students to represent two-digit numbers as equivalent

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amounts of tens and ones, and this assignment prompts students to identify the place value of both digits in the given numbers (for example, 72 is 7 tens and 2 ones) and decompose them into tens and ones in the form of an addition equation (such as 70 + 2 = 72).

This assignment attempts to build students' conceptual understanding, but it does so in a superficial way. Understanding that two-digit numbers are made up of some number of tens and ones provides the conceptual groundwork for students to develop an understanding of addition and subtraction within the base-ten system—a major focus of first-grade math instruction. However, to build this understanding, students should have been asked to flexibly represent the tens and ones in two-digit numbers in multiple ways, such as drawings, base-ten blocks, or addition expressions. This assignment requires students to represent two-digit numbers symbolically with an addition equation, which is an appropriate representation, but because students are asked to represent each number exactly the same way, it's hard to tell if students truly understand place value or if they are just following a rote procedure.

Practice Standards

This assignment allows students to superficially engage with two mathematical practice standards. Using a place value chart (in the form of a house) gives students the chance to superficially engage with Mathematical Practice Standard #5 ("Use appropriate tools strategically"). This would be stronger if students were allowed to choose which tool they wanted to use for the assignment, whether a place value chart or something else like linking cubes. Decomposing a two-digit number into the equivalent number of tens and ones also gives students the chance to superficially engage with Mathematical Practice Standard #7("Look for and make use of structure"), but decomposing all of the numbers exactly the same way doesn't allow students to meaningfully explore the structure of the base-ten system.

Sample Task 3:

This assignment is weakly aligned to the standards.

Overview

First-grade students write the numerals 1-20 several times. This assignment is weak for first grade because it is aligned with a kindergarten standard. First-grade students should be writing numerals up to 120.

Related Standards

KY.1.NBT.1: a. Count forward to and backward from 120, starting at any number less than 120. b. In this range, read and write numerals and represent a number of objects with a written numeral.

Why is this assignment weakly aligned?

This assignment is aligned to kindergarten standard KY.K.CC.3, which requires students to write numerals 1-20. In first grade, students should be building on what they learned in kindergarten and writing numerals up to 120. Young students need lots of practice writing numerals, and it could be appropriate to assign more practice to individual first-graders still struggling to write the numerals 1-20 correctly. However, this is not an appropriate assignment for an entire first-grade class.

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First-grade standard KY.1.NBT.1 targets both procedural skill (counting, reading, and writing numbers) and conceptual understanding (representing a number of objects with a written numeral), but this assignment only gives students a chance to build a below-grade level procedural skill. There is no connection between the numerals students are writing and the concept that those numerals can represent a number of objects.

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