1:2 Tens and Ones

Teacher Notes

Central math concepts

Building on their experiences in kindergarten with exploring teen numbers (see [Teacher Notes]() for task **K:12 Make Ten and Some More**), students in grade 1 learn to see a collection of ten ones as a unit—called a ten—and they learn that the two digits of a two-digit number represent amounts of tens and ones. A special case of this idea is that the numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. Another special case of this idea is that 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).

The *Progression* document† includes many useful points relevant to the teaching and learning of place value in grade 1, including the following:

- Although students were reciting the counting sequence to 100 by ones and by tens in kindergarten (CCSS K.CC.A.1), "The number words continue to require attention at first grade because of their irregularities. The decade words, 'twenty,' 'thirty,' 'forty,' etc., must be understood as indicating 2 tens, 3 tens, 4 tens, etc. Many decade number words sound much like teen number words. For example, 'fourteen' and 'forty' sound very similar, as do 'fifteen' and 'fifty,' and so on to 'nineteen' and 'ninety.' … [T]he number words from 13 to 19 give the number of ones before the number of tens. From 20 to 100, the number words switch to agreement with written numerals by giving the number of tens first. Because the decade words do not clearly indicate they mean a number of tens ('-ty' does mean tens but not clearly so) and because the number words 'eleven' and 'twelve' do not cue students that they mean '1 ten and 1' and '1 ten and 2,' children frequently make count errors such as 'twenty-nine, twenty-ten, twenty-eleven, twenty-twelve.'" (p. 6)
- Saying a two-digit number, 67 for example, as '6 tens, 7 ones' as well as 'sixty-seven' "can help students focus on the tens and ones structure of written numerals." (p. 6)
- "Comparing magnitudes of two-digit numbers uses the understanding that 1 ten is greater than any amount of ones represented by a one-digit number." (p. 8)
- When writing statements of comparison, "Correctly placing the < and > symbols is a challenge for early learners. Accuracy can improve if students think of putting the wide part of the symbol next to the larger number." (p. 8)

Relevant prior knowledge

The following mathematics knowledge may be activated, extended, and deepened while students work on the task: fluency with the count sequence within 100.

1:2

True or false?

6 tens + 4 ones < 4 ones + 7 tens

7 ones + 5 tens = _____

Answer

True. 57.

Click here for a student-facing version of the task.

Refer to the Standards

1.NBT.B; MP.1, MP.6, MP.7. Standards codes refer to www.corestandards.org. One purpose of the codes is that they may allow a task to shed light on the Standards cited for that task. Conversely, reading the cited Standards may suggest opportunities to extend a task or draw out its implications. Finally, Standards codes may also assist with locating relevant sections in curriculum materials, including materials aligned to comparable standards.

Aspect(s) of rigor

Concepts

Additional notes on the design of the task

- The task is designed to target conceptual understanding, even though it only asks for brief answers rather than extended writing or other language demands. Teachers can also question students about the thinking that led to their answers, individually or in a group setting (and students can question each other).
- Place value units of tens and ones appear in both orders, so that relating the named quantities to base-ten numerals in positional notation is part of the task.

Extending the task

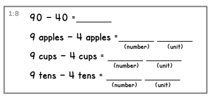
How might students drive the conversation further?

- Students could listen to each other's rationale for how they answered each question, restating it and checking that they restated it accurately.

- Students could create their own versions of task 1:2, trading their problems with a partner and checking each other's answers.

Related Math Milestones tasks

1:8



1:8

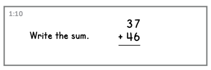
$90 - 40 =$ ______

9 apples − 4 apples = ______ (number) ______ (unit)

9 cups − 4 cups = ______ (number) ______ (unit)

9 tens − 4 tens = ______ (number) ______ (unit)

1:10

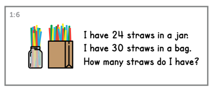


1:10

Write the sum.

$$\begin{array}{r} 37 \\ +\ 46 \\ \hline \end{array}$$

1:6

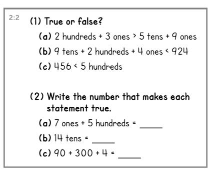


1:6

I have 24 straws in a jar.
I have 30 straws in a bag.
How many straws do I have?

Tasks **1:8 Subtracting Units** and **1:10 Two-Digit Addition** involve calculating with two-digit numbers based on place value understanding. Task **1:6 Two Groups of Straws** involves a sum of two two-digit numbers in context.

2:2



2:2

(1) True or false?

(a) 2 hundreds + 3 ones > 5 tens + 9 ones

(b) 9 tens + 2 hundreds + 4 ones < 924

(c) 456 < 5 hundreds

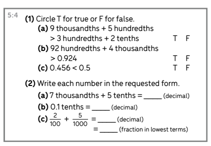
(2) Write the number that makes each statement true.

(a) 7 ones + 5 hundreds = ______

(b) 14 tens = ______

(c) 90 + 300 + 4 = ______

5:4



5:4

(1) Circle T for true or F for false.

(a) 9 thousandths + 5 hundredths > 3 hundredths + 2 tenths T F

(b) 92 hundredths + 4 thousandths > 0.924 T F

(c) 0.456 < 0.5 T F

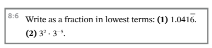
(2) Write each number in the requested form.

(a) 7 thousandths + 5 tenths = ______ (decimal)

(b) 0.1 tenths = ______ (decimal)

(c) $\frac{2}{100} + \frac{5}{1000}$ = ______ (decimal) = ______ (fraction in lowest terms)

8:6

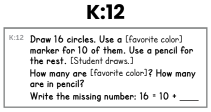


8:6

Write as a fraction in lowest terms: **(1)** $1.041\overline{6}$. **(2)** $3^2 \cdot 3^{-5}$.

In later grades, task **2:2 Place Value to Hundreds** continues the progression of place value concepts; these concepts extend to finite decimals in task **5:4 Place Value to Thousandths** and to repeating decimals in task **8:6 Rational Form**.

K:12



K:12

Draw 16 circles. Use a [favorite color] marker for 10 of them. Use a pencil for the rest. [Student draws.]

How many are [favorite color]? How many are in pencil?

Write the missing number: 16 = 10 + ____

In earlier grades, task **K:12 Make Ten and Some More** involves understanding the number 16 as ten and six more.

Curriculum connection

1. In which unit of your curriculum would you expect to find tasks like 1:2? Locate 2-3 similar tasks in that unit. How are the tasks you found similar to each other, and to 1:2? In what specific ways do they differ from 1:2?

2. Thinking about the curriculum unit you identified, at what point in the unit might a task like 1:2 help students converge toward grade-level thinking about the important mathematics in the task? What factors would you consider in choosing when to use such a task in the unit?*

† Common Core Standards Writing Team. (2015, March 6). *Progressions for the Common Core State Standards in Mathematics (draft). Grades K–5, Number and Operations in Base Ten.* Tucson, AZ: Institute for Mathematics and Education, University of Arizona. Page numbers in these Teacher Notes refer to this *Progression* document.

* Math Milestones™ tasks are not designed for summative assessment. Used formatively, the tasks can reveal and promote student thinking.

Anticipating and responding to student thinking about the task

Imagine how students might think about the task, and what you might see and hear while they work.

On this page, you can write your thoughts on the following questions.

Solution Paths

- What solution paths might you expect to see?
- What representations might you see? What correspondences between those representations might be noticed by students (or be worth pointing out to students) and discussed by them?
- What misconceptions or partial understandings might be revealed as students work on the task? How could you respond to these positively and productively?

Language

- What might you expect to hear from students engaged with the task? What does that language reveal about their mathematical thinking, and how might you respond to different ways of thinking?
- If students are using early English or using multiple languages in an integrated communication system, how might you help their classmates see those mathematical ideas as valuable?
- Even when using nascent language, students are thinking and communicating their thinking. What might it look like to respond positively and productively to the mathematics in their thinking before giving feedback on the language used?

Identity, Agency, and Belonging

- How can you engage students' interests, experiences, or funds of knowledge?
- How can you build students' self-confidence as learners, thinkers, and doers of mathematics?
- What choices are there for a student to make in the task? How can you build students' agency to the point where they notice and make these choices to solve problems?
- How might one use feedback to build student agency? Where might there be opportunities to build students' self-confidence?