

Just in Time Quick Check

Standard of Learning 1.NS.2

Strand: Number and Number Sense

Standard of Learning 1.NS.2

The student will represent, compare, and order quantities up to 120.

Students will demonstrate the following Knowledge and Skills:

- a) Read and write numerals 0-120 in sequence and out of sequence.
- b) Estimate the number of objects (up to 120) in a given collection and justify the reasonableness of an answer.
- c) Create a concrete or pictorial representation of a number using tens and ones and write the corresponding numeral up to 120 (e.g., 47 can be represented as 47 ones or it can be grouped into 4 tens with 7 ones left over).
- d) Describe the number of groups of tens and ones when given a two-digit number and justify reasoning.
- e) Compare two numbers between 0 and 120 represented pictorially or with concrete objects using the terms *greater than*, *less than*, or *equal to*.
- f) Order three sets, each set containing up to 120 objects, from least to greatest, and greatest to least.

Just in Time Quick Check

Just in Time Quick Check Teacher Notes

Supporting and Prerequisite SOL: K.NS.1, K.NS.2, 1.NS.1

Teacher Note: This quick check is split into two parts, Part A and Part B. To complete Part A, each student will need a pencil and a copy of the “Just in Time Quick Check 1.NS.2: Student Copy” (pages 3 and 4). This part may be completed as a whole group (or teachers may choose to complete Part A with each student individually). To complete Part B, teachers will need to have 90 counters/cubes (grouped into 8 groups of ten and 10 singles) and one copy of The Marble Jar (page 5). This part should be completed with each student individually.

Just in Time Quick Check 1.NS.2: Student Copy

1. Write each number as it is read to you.

A)	B)	C)
D)	E)	F)

2. Fill in the missing numbers.

14				18		
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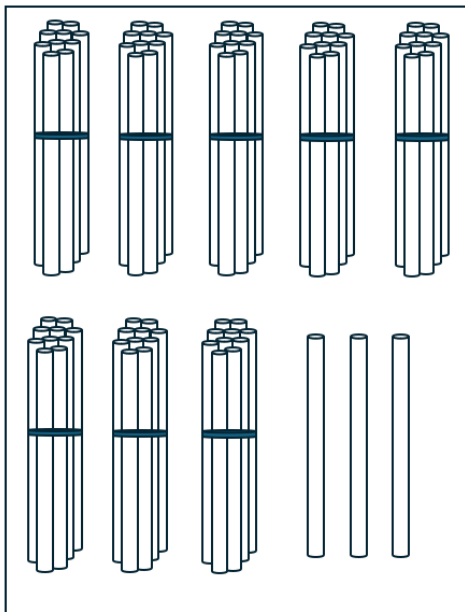
		40				
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					103	
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3. Draw a picture using tens and ones to show the number sixty-four. Write the number at the bottom of your picture.

Number: _____

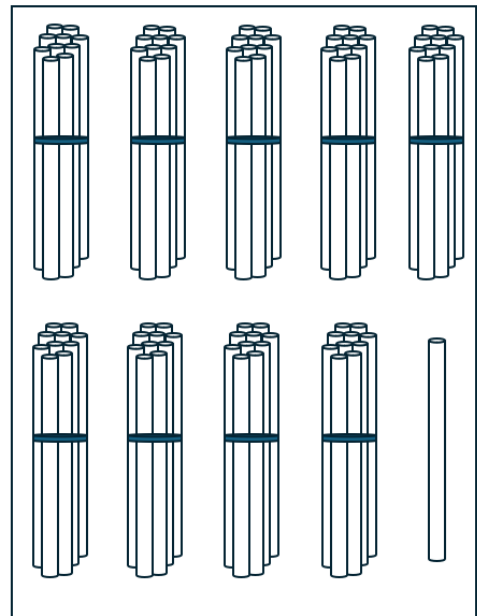
4. Circle the words that best describe how to compare the number of straws in each group.



is less than

is greater than

is equal to



The Marble Jar



Part A (Whole Group)

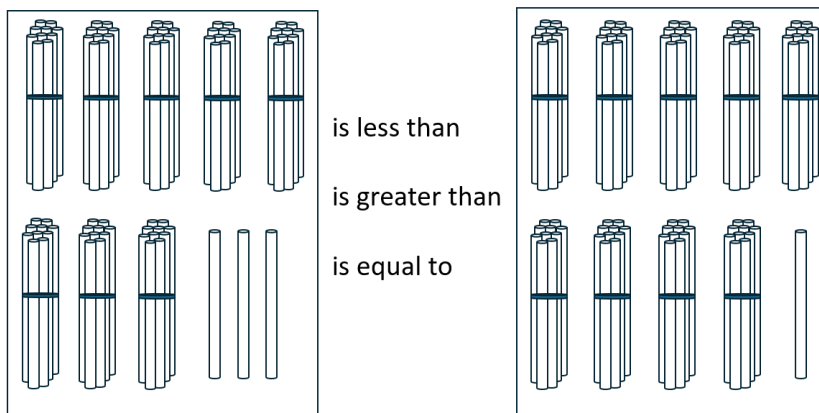
1. To administer this task, say: *I am going to call out some numbers. Please write the number in the box (i.e., in box A, write the number 78, etc.).*

- A) 78
- B) 41
- C) 3
- D) 104
- E) 92
- F) 60

2. To administer this task, ask students to fill in the missing numerals on their number paths. NOTE: The number paths are not continuous from one line to the next.

3. To administer this task, ask students to draw a picture using tens and ones to show the number sixty-four. Then ask them to write the number at the bottom of their picture. NOTE: You may also provide students with 70 cubes or counters and have them complete this task using concrete manipulatives.

4. To administer this task, have students circle the words that best compare the number of straws in each group: *is less than, is greater than, is equal to.*



Part B (Student Interview)

5. Ask the student: *In the number 82, how many groups of ten are there? How many ones? Tell how you know.*

Student Response:

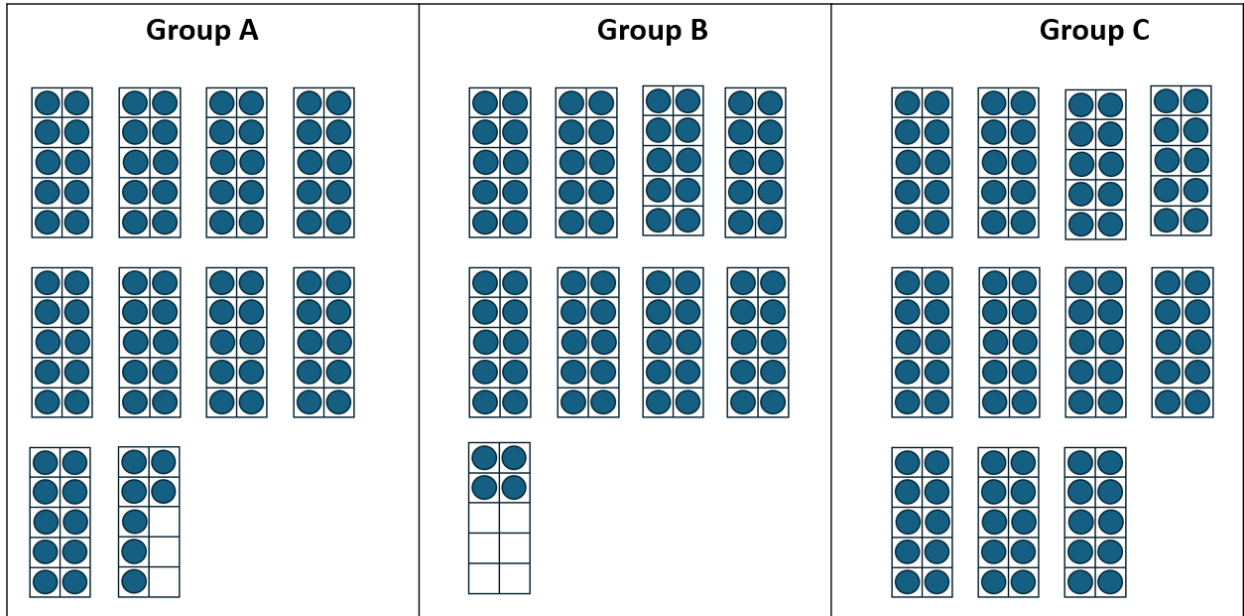
6. Show the student two sets of counters (one set that has 52 counters that has been organized into 5 groups of ten and 2 ones, and another set that has 38 counters that has been organized into 3 groups of ten and 8 ones). Say: Here are two sets of counters. (Point to the set of 52 counters.) Is this set greater than, less than, or equal to this set of counters? (Point to the set with 38 counters.)

Student Response:

7. Show the student the picture of The Marble Jar (page 5). Ask students: *About how many marbles are in the jar below?* NOTE: If students cannot provide a reasonable estimate, say: *Do you think there are closer to 20 marbles or 120 marbles?*

Student Response:

8. Ask the student to order the following three groups from greatest to least.



Student Response:

1.NS.2 Just in Time Quick Check Teacher Notes

Common Errors/Misconceptions and their Possible Indications

1. To administer this task, say: *I am going to call out some numbers. Please write the number in the box (i.e., in box A, write the number 78, etc.).*

- A) 78
- B) 41
- C) 3
- D) 104
- E) 92
- F) 60

Symbolic reversals in numeral writing are common for younger students and should not be mistaken for lack of understanding. Single number reversals are acceptable and developmentally appropriate (e.g., a backwards 3 is not considered an error) but reversing the order of the digits is considered an error (e.g., writing 14 for 41 or writing 29 for 92). Students who struggle to write numerals in and out of sequence may benefit from the use of visual representations such as a 110 chart, 110 chart puzzles, and number paths, and from engaging in kinesthetic activities such as tracing numbers on paper, in sand or rice, etc., as they say them.

Students may have difficulty writing numbers over 100. For example, they may write 1004 for one hundred four. This indicates they are not yet able to think of the number in terms of tens and ones. Students will need additional opportunities to connect the base-ten concepts with oral and written number names. It is helpful to use base-ten models (such as towers of ten cubes and ten single cubes) when teaching number names and when helping students make connections to the written symbols.

2. To administer this task, ask students to fill in the missing numerals on their number paths. NOTE: The number paths are not continuous from one line to the next.

The most common errors that students may make when counting in sequence include difficulty with teen numbers (e.g., in the first row, writing 51, 61, 71, 91 instead of 15, 16, 17, and 19), numbers crossing over the decades (e.g., in the second row, writing 48 and 49 before the 40 instead of 38 and 39), and numbers greater than 100 (e.g., in the third row, writing 1001, 1002, and 1004 instead of 101, 102, 104). These errors may be related to rote counting, which should be a part of the focus when assessing students' symbolic representation of a sequence of numbers. These errors may also indicate a lack of understanding of base-ten concepts and number patterns. When connecting base-ten concepts with oral and written numbers, it may be helpful to emphasize that teen numbers are exceptions that are formed "backward" and do not follow the same pattern as the other two digit numbers. Describing a teen number as a ten and some more, will help students name how many are in a set of 13-19 objects. Additionally, the use of a 110 chart and counting by starting at various places on the chart will help students focus on the number patterns. The use of a 110 chart or number path with base-ten models and the symbolic representation of numbers and sequences of numbers supports students as they count and write number sequences and lays a foundation for place value.

3. To administer this task, ask students to draw a picture using tens and ones to show the number sixty-four. Then ask them to write the number at the bottom of their picture. NOTE: You may also provide students with 70 cubes or counters and have them complete this task using concrete manipulatives.

When representing the number sixty-four, students may demonstrate several common misconceptions related to place value and counting. A common error is drawing 64 individual ones rather than grouping objects into tens and ones, which indicates limited understanding that ten ones can be composed into one ten. Some students may correctly draw groups but miscount the number of tens or ones (e.g., drawing six groups of ten but then drawing more than 4 ones, or drawing only five tens and assuming that is enough). Some students may write 64 incorrectly (e.g., reversing the digits and writing 46 or writing 604), which may indicate difficulty connecting the pictorial model to the written number.

If students use cubes or counters, they may neglect to create groups of 10 and instead create one large group of 64. Students may also count the cubes or counters incorrectly, resulting in a number close to 64 but not exactly 64.

It may be helpful for teachers to prompt students to explain their pictures and the number they wrote. This will help determine whether students understand that the “6” in 64 represents six tens and the “4” represents four ones.

4. To administer this task, have students circle the words that best compare the number of straws in each group: *is less than, is greater than, is equal to*.

Students may have difficulty connecting the pictorial representations to the actual quantities. For students who struggle, provide additional opportunities to represent quantities with concrete objects, creating a pictorial representation of the objects, and comparing sets using less than, greater than, and equal to.

5. Ask the student: *In the number 82, how many groups of ten are there? How many ones? Tell how you know.*

When answering questions about the number 82, students may demonstrate misconceptions related to place value and the meaning of digits. A common error is stating that there are eight ones and two tens, which suggests students are reading the digits without understanding their place-value roles. Some students may say there are 82 ones, indicating they are counting the total quantity but not recognizing how the number can be decomposed into tens and ones. Other students may correctly identify eight groups of ten and two ones but are unable to explain their reasoning, relying on memorization rather than understanding that the digit in the tens place tells how many tens and the digit in the ones place tells how many ones. Teachers should encourage students to justify their answers by connecting the written numeral to a concrete or pictorial model, emphasizing that 82 is composed of 8 tens (which equal 80) and 2 ones, and that place value determines how each digit contributes to the total number.

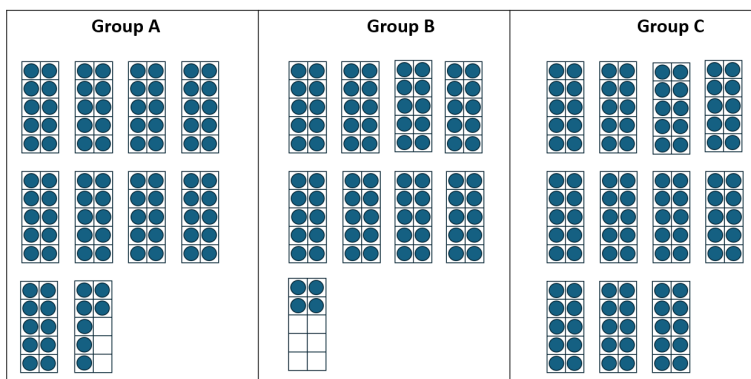
- Show the student two sets of counters (one set that has 52 counters that has been organized into 5 groups of ten and 2 ones, and another set that has 38 counters that has been organized into 3 groups of ten and 8 ones). Say: Here are two sets of counters. (Point to the set of 52 counters.) Is this set greater than, less than, or equal to this set of counters? (Point to the set with 38 counters.)

Students who lack an understanding of place value may have difficulty determining the relationship of the groups to one another. For example, students may say that the group of 38 is greater than the group of 52 because they compared how many ones are in each group and recognized that 8 is greater than 2. In addition, students' experience with the vocabulary may contribute to a lack of understanding. They may be familiar with the term "more" but have less experience with "greater than" and "less than." Using the terms together and connecting them to quantities using concrete objects helps to build an understanding of the relationships. Provide opportunities for students to group two different collections of objects by tens and ones and then compare the values of the collections using these terms. It may also be helpful to reinforce the relationship by having students use the inverse relationships (e.g., 52 is greater than 38 and 38 is less than 52). The use of number paths and/or hundreds charts are helpful in comparing numbers in relation to one another.

- Show the student the picture of The Marble Jar (page 5). Ask students: *About how many marbles are in the jar below?* NOTE: If students cannot provide a reasonable estimate, say: *Do you think there are closer to 20 marbles or 120 marbles?*

Students who lack a sense of magnitude may struggle to estimate that this jar contains approximately 20 marbles and may provide an estimate that is not reasonable. This estimate could be too low, such as 1 marble or 5 marbles, or it could be too high, such as 100 marbles or 1,000 marbles. Young students often think that any quantity beyond their counting range is a very large quantity, thereby expressing the quantity in the jar as hundreds rather than tens. Students will benefit from many experiences with counting, working with different-size sets, comparing quantities that have obvious differences and those that do not have obvious differences. These experiences should involve ample practice with concrete objects of different sizes and shapes. In addition, it may be beneficial to provide students with actual jars of concrete materials (e.g., buttons, pencils, unit cubes) to compare and provide one jar with a benchmark number (which might be 10 of that item). Students' sense of magnitude is best activated with concrete models rather than pictorial models.

- Ask the student to order the following three groups from greatest to least.



When ordering the three groups, students may demonstrate errors comparing numbers represented with ten frames. Some students may miscount filled ten frames or overlook partially filled frames, especially with larger numbers such as 110, and may not recognize that 110 is greater than any two-digit number because it includes eleven tens. Other students may compare only the ones left over instead of first comparing the number of full tens (for example, noticing that 97 has more ones than 84 and incorrectly concluding it is the greatest without considering the tens in 110). Students may also reverse the order when asked for greatest to least, listing numbers from least to greatest instead. Teachers should prompt students to first count and compare the number of full tens in each group, then compare any remaining ones, and explain their reasoning using place-value language to support accurate ordering.