Third Grade Cluster 1 CFA Assessment
Teacher Guide

This assessment assesses students' ability to:

- Recognize contexts that involve multiplication and division
- Connect multiplication and division situations to multiplication expressions and equations
- Given a multiplication or division equation, write a story that matches the equation
- Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities
- Solve problems in which you need to find the number of things in a group
- Solve problems in which you need to find the number of groups
- Use drawings and number lines to represent multiplication and division situations
- Use the commutative property
- Use arrays to show the commutative property

NCSCOS 2017 Standards:

This assessment addresses each of the following NCSCOS 2017 standards:

Standard	Questions
NC.3.OA.1	8, 9, 13, 14
NC.3.OA.2	5, 11, 15
NC.3.OA.3	1, 2, 6

Data Driven Instruction:

This assessment is one data point and should be used with data gathered from multiple sources to make an informed decision about each student's misconceptions and mastery.

3rd Grade Cluster 1 CFA – Scoring Guide

Question	Standard	Answer
1	NC.3.OA.3	C
2	NC.3.OA.3	B
3	NC.3.OA.2	A
4	NC.3.OA.3	D
5	NC.3.OA.1	B
6	NC.3.OA.1	D
7	NC.3.OA.2	C
8	NC.3.OA.1	Rubric
9	NC.3.OA.1	Rubric

Question 8 (2 points):
Student receives 1 point for each of the following bullets:
- Student states that product of 6 x 3 and 3 x 6 is 18.
- Student creates a representation that shows that 6 x 3 = 3 x 6 (ie number line with both 3 x 6 and 6 x 3 represented, two congruent arrays, equal groups sorted into groups with one of each color-then resorted by color)

Question 9 (4 points):
Student receives 1 point for each of the following bullets:
- Student uses the number line to show 6 jumps of 7 inches.
- Student states that the length of the chalk line is 42 inches.
- Student records the addition equation: $7 + 7 + 7 + 7 + 7 + 7 = 42$
- Student records the multiplication equation: $6 \times 7 = 42$ (*Note that if a student records $7 x 6 = 42$, it may be counted correct, but teachers should continue to discuss this with students because it does not match the situation exactly since there are 6 groups of 7 inch bricks, rather than 7 groups of 6 inch bricks*).

Question 10 (3 points):
Student receives 1 point for each of the following bullets:
- Student writes a story in which 56 items or units are separated into 8 equal groups OR Student writes a story in which 56 items or units are separated into groups of 8.
- Student represents their story problem with a drawing that shows how items are being separated.
- Student states that the quotient is 7.

Student Name: _____ Date: _____

3rd Grade Cluster 1 Assessment
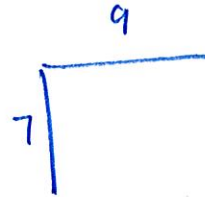
Directions:

Solve each problem and show your work.

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1. Lucas and Ima are playing a card game. They place cards face down in equal rows.

   - They made 9 rows.
   - They put 7 cards in each row.

   How many cards did Lucas and Ima place in rows?

   $9 \times 7 = 63$

   A 16   B 56
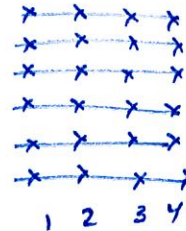   C 63   D 72

2. Ms. Chang wants to rearrange the desks into rows.

   - There are 24 desks in the classroom.
   - She wants 6 rows of desks.

   How many desks will Ms. Chang put in each row?

   A 3   B 4
   C 18   D 30

3. Which of the following could be represented with a division expression?

   A Kai practiced soccer for a total of 8 hours this week. He practiced the same amount of time on 4 different days. How long did Kai practice each day? $8 \div 4 = 2$

   B Jaleel practiced football for 9 hours this week. That was 3 hours more than he practiced last week. How many hours did Jaleel practice last week? $9 + 3$

   C Carlita practiced basketball for 5 days in a row. Each day she practiced for 2 hours. How many hours did Carlita practice? 5×2

   D Ming Li practiced gymnastics on 3 days this week. She practiced 4 hours on Monday, 2 hours on Tuesday, and 3 hours on Thursday. How many hours did Ming Li practice? $4 + 2 + 3 = 9$
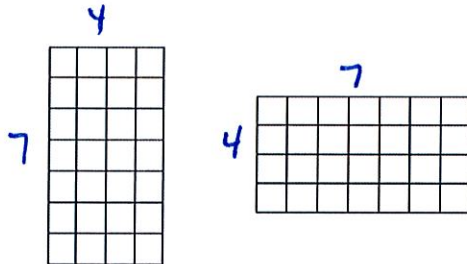
4. Ming Li has 8 packs of gum. Each pack has 8 pieces of gum. How many pieces of gum does Ming Li have?

$8 \times 8 = 64$

A 16   B 48
C 56   D 64

5. Which equation shows why the two arrays have the same number of squares?

A $4 + 4 + 4 + 4 = 7 + 7 + 7 + 7 + 7 + 7 + 7$
B $7 \times 4 = 4 \times 7$
C $7 + 4 = 4 + 7$
D $7 \times 1 = 1 \times 4$

6. Which problem could be solved using the expression 10×5?
   A Liana has 10 candy bars. She wants to share them equally between herself and four friends. How much of a candy bar should each friend get? $10 \div 5$
   B Liana had 10 stickers. She gave 5 of them to her younger sister. How many stickers does Liana have now? $10 - 5$
   C Liana had $10. She earned $5 for washing her neighbor's car. How much money does Liana have now? $10 + 5$
   D Liana drew 10 pentagons on her paper. A pentagon has 5 sides. How many total sides do Liana's pentagons have? 10×5

7. DeAndre has 72 pieces of gum. He has 8 flavors. If he has an equal number of pieces for each flavor, which equation could he use to find how many pieces of gum he has for each flavor?

$72 \div 8$

A $72 + 8 = 80$ B $72 \times 8 = 576$
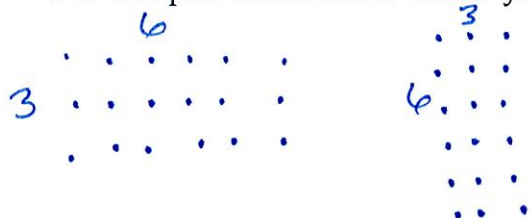C $72 \div 8 = 9$ D $72 - 8 = 64$

Student Name: _____

Open Response Questions:

Questions 9 - 10 are open response questions. You will need to use pictures, numbers, or words to answer these questions.

8. Kaneka said that the product of 3 x 6 is the same as the product of 6 x 3. Do you agree or disagree?

   Use a representation to show your thinking:

   6

   3

   3

   6

9. A group of children were having relays races for fun. They wanted to build a line on drive way using chalk to use for their races. Jose found some brick that were 7 inches long. He laid 6 bricks end-to-end with no gaps or overlaps. Use jumps on the number line to show the bricks and the length of the chalk line.
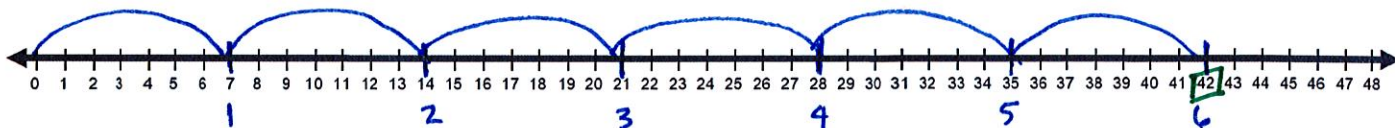
   How long is the chalk line? __42__ inches

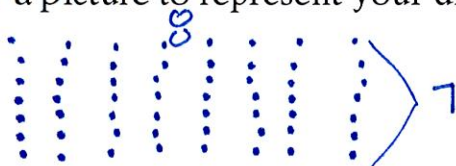   Write an addition equation and a multiplication equation to represent your work on the number line:

   Addition equation: 7 + 7 + 7 + 7 + 7 + 7 = 42

   Multiplication equation: 7 X 6 = 42

10. Write a math story to match 56 ÷ 8.

    56 items separated into 8 equal groups.

    Draw a picture to represent your division story.

    7

    What is the quotient of 56 ÷ 8?

    7