

Assessment and the CCSSM

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### Assessment and the CCSSM

In this assignment, I prepared two formative assessments for the lessons from past two weeks. The goal of these evaluations is gathering feedback from my students on their performance and for guiding my instructional plan. “Activity-based methods heighten the likelihood that students will challenge each other’s, or their misconceptions which are thought to have a more transformative effect compared to having one’s ideas challenged by the teacher.” (Goldsmith, 2006).

#### Lesson 1: (6.RP.1)

After students are done with the first week, I prepared a formative assessment (Quiz-1) to measure my student's specific math skills. The quiz includes ten questions under four different categories. The purpose of having various types of questions is to differentiate the assessment and understand my students’ learning and responding styles. I am expecting to learn how I taught the lesson and how students reflected back from this assessment. It is paramount to see my teaching strategies. If the outcomes are not expected, then I may need to find new ideas to go over and reteach the topic again. Specifically for this lesson, I am seeking if my students can understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. If my students can solve at least the half of these questions, I may go over the quiz to develop their understandings. Half of the questions on the assignment prepared on an easy level and other half are medium level questions. There are four types of questions to analyze my students’ solving skills. It would not be fair enough to have one type of questions to

collect data. The outcome of the quiz will provide conceptual understanding, computational fluency, and application abilities of the students.

Lesson 2 (6.NS.C5):

Students are done with the second lesson and ready to assess. Students will be able to understand that positive and negative numbers are used together to describe quantities having opposite directions or values. I will reteach or move to the next lesson based on the results of the quiz (Quiz-2) for the second week. The expectation will be same as the first week. The high-level students may be a pair of the students who struggles to solve the questions. Peer study might be more efficient than reteaching the topic for this lesson.

**Quiz-1**  
**(Lesson 1: 6.RP.1)**

**Multiple Choice**

*Identify the choice that best completes the statement or answers the question.*

\_\_\_\_\_ 1. Which ratio could be used to compare the number of triangles to the number of squares in the pattern?



- |    |     |    |      |
|----|-----|----|------|
| a. | 7:5 | c. | 5:12 |
| b. | 5:7 | d. | 12:7 |

\_\_\_\_\_ 2. Steve earns \$8 per hour. His older brother earns \$2 more per hour than Steve. What is the ratio of the money Steve earns in an hour to the money his brother earns in an hour?

- |    |             |
|----|-------------|
| a. | \$8 to \$2  |
| b. | \$2 to \$8  |
| c. | \$10 to \$8 |
| d. | \$8 to \$10 |

\_\_\_\_\_ 3. A man mixed 2 teaspoons of sugar into his large coffee but then added one more teaspoon of sugar because it was not sweet enough. What is the ratio of teaspoons of sugar to one large coffee?

- |    |     |
|----|-----|
| a. | 3:1 |
| b. | 2:1 |
| c. | 1:3 |
| d. | 1:2 |

**Numeric Response**

1. A bag contains red and blue marbles. One-fourth of the marbles are red. If there is one red marble in the bag, how many blue marbles are in the bag?

2. What is the ratio of eleven days to a week written as a fraction?

**Short Answer**

1. On Mr. Bach's farm, 18 of the 30 horses are mares. What is the ratio of mares to all horses written as a fraction and a decimal? Is there another way to write the ratio? Explain your answer.
2. Write the ratio of the first number to the second number in three ways.  
5, 2
3. A middle school has the fifth and sixth grades. There are 100 fifth grade boys and 110 fifth grade girls. There are 7 fewer sixth grade boys than fifth grade boys, and there are 10 more sixth grade girls than sixth grade boys. What is the ratio of girls to boys in the middle school? Show your work.

### Problem

1. A particular school has a teacher to student ratio of 1 teacher to 11 students.
  - a. Express the teacher to student ratio using the symbol “:”.
  - b. Express the teacher to student ratio as a fraction.
  - c. Are there more teachers or students? Explain how you know.
2. On a package of rice, the directions say that the ratio of cups of water to cups of uncooked rice should be  $1:\frac{1}{2}$ .
  - a. What is the total number of cups of ingredients needed if you want to cook  $\frac{1}{2}$  cup of uncooked rice?
  - b. Susan says that the ratio of cups of water to total cups of ingredients is 1:2 because there is twice as much water as there is rice. Is this the correct ratio? Explain why or why not, and if not, give the correct ratio.

### Quiz-1 Answer Section

#### MULTIPLE CHOICE

1. ANS: B PTS: 1 NAT:  
NT.CCSS.MTH.10.6.6.RP.1  
DOK: DOK 2
2. ANS: D

Steve earns \$8 per hour, so his older brother earns  $\$8 + \$2 = \$10$  dollars per hour. The ratio of Steve's earnings to his brother's earnings is \$8 to \$10.

<b>Feedback</b>
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<b>A</b>	The second part of the ratio should be the amount Steve's older brother makes in one hour. His brother does not make \$2 per hour.
<b>B</b>	The order is important when writing a ratio. The first part of the ratio should be the amount that Steve makes in one hour. Steve does not make \$2 per hour.
<b>C</b>	The order is important when writing a ratio. This expression is the ratio of the amount Steve's brother makes to the amount Steve makes.
<b>D</b>	That's correct!

PTS: 1 NAT: NT.CCSS.MTH.10.6.6.RP.1 KEY: ratio  
 DOK: DOK 2  
 3. ANS: A  
 The ratio is  $2 + 1 = 3$  teaspoons to 1 large coffee.

<b>Feedback</b>	
<b>A</b>	That's correct!
<b>B</b>	Make sure you find the total number of teaspoons of sugar.
<b>C</b>	The order is important when writing a ratio. The desired ratio is the ratio of teaspoons of sugar to cups of coffee.
<b>D</b>	Make sure you find the total number of teaspoons of sugar and pay attention to the order of the quantities in the ratio.

PTS: 1 NAT: NT.CCSS.MTH.10.6.6.RP.1 KEY: ratio  
 DOK: DOK 1

### NUMERIC RESPONSE

1. ANS: 3

PTS: 1 REF: MCT60024 NAT: NT.CCSS.MTH.10.6.6.RP.1  
 LOC: NCTM 6-8.NOP.3.d | NCTM 6-8.NOP.1.d TOP: Ratios  
 KEY: fraction | word DOK: DOK 1

2. ANS:  $\frac{11}{7}$

PTS: 1 REF: MCT70014 NAT: NT.CCSS.MTH.10.6.6.RP.1  
 STA: NC.NCES.MTH.09.7.7.N.1.1 TOP: Ratios KEY: ratio | fraction |

word

DOK: DOK 1

### SHORT ANSWER

1. ANS:

$\frac{18}{30}$  or  $\frac{3}{5}$ , 0.6; Yes, you could also write the ratio as 18 : 30, 18 to 30, 3 : 5, or 3 to 5.

PTS: 1 REF: MCT70118 NAT: NT.CCSS.MTH.10.6.6.RP.1  
 LOC: NCTM 6-8.NOP.1.a | NCTM 6-8.NOP.1.c TOP: Ratios  
 KEY: decimal | ratio | fraction | convert DOK: DOK 1

2. ANS:

$$5:2; \frac{5}{2}; 5 \text{ to } 2$$

PTS: 1 REF: M2.08.EN.CTA.02 NAT:  
 NT.CCSS.MTH.10.6.6.RP.1  
 STA: NC.NCES.MTH.09.7.7.N.1.1 KEY: ratios DOK: DOK 1  
 3. ANS:

The number of boys in fifth grade is 100, and the number of boys in sixth grade is  $100 - 7 = 93$ , for a total of  $100 + 93 = 193$  boys in the middle school. The number of fifth grade girls is 110, and the number of sixth grade girls is  $93 + 10 = 103$ , for a total of  $110 + 103 = 213$  girls. The ratio of girls to boys in the middle school is 213:193.

**Rubric**

1 point for correct answer; 2 points for showing appropriate work

PTS: 3 NAT: NT.CCSS.MTH.10.6.6.RP.1 KEY: ratio  
 DOK: DOK 2

**PROBLEM**

1. ANS:
- 1:11
  - $\frac{1}{11}$
  - There are more students because there are 11 students for each teacher.

**Rubric**

- 1 point
- 1 point
- 1 point for correct answer; 1 point for correct explanation

PTS: 4 NAT: NT.CCSS.MTH.10.6.6.RP.1 | NT.CCSS.MTH.10.K-12.MP.3  
 KEY: ratio DOK: DOK 2  
 2. ANS:

- $1\frac{1}{2}$  cups of ingredients
- No; there is twice as much water for uncooked rice, but the amount of water is not twice the total amount of the ingredients. The ratio of cups of water to total cups of ingredients is  $1:1\frac{1}{2}$ .

**Rubric**

- 1 point
- 1 point for knowing that the ratio in b is not correct; 1 point for giving the correct ratio

PTS: 3 NAT: NT.CCSS.MTH.10.6.6.RP.1 | NT.CCSS.MTH.10.K-12.MP.3  
 KEY: ratio DOK: DOK 2

**Quiz-2**  
**(Lesson 1: 6.NS.C5)**

**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

- \_\_\_\_\_ 1. Which number best represents the situation, “A plane descends 1,500 ft”?
- |    |       |    |        |
|----|-------|----|--------|
| a. | 1,500 | c. | -1,500 |
| b. | 15    | d. | -15    |
- \_\_\_\_\_ 2. If -6 represents 6 miles below your position, what would 6 represent?
- |    |                                       |    |                                      |
|----|---------------------------------------|----|--------------------------------------|
| a. | 6 miles to the right of your position | c. | 6 miles north of your position       |
| b. | 6 miles above your position           | d. | 6 miles to the left of your position |
- \_\_\_\_\_ 3. Which situation would NOT be represented by a negative integer?
- |    |                        |    |                         |
|----|------------------------|----|-------------------------|
| a. | a loss of \$15         | c. | an increase of 2 pounds |
| b. | a decrease of 10 yards | d. | 6 inches below normal   |
- \_\_\_\_\_ 4. In Barrow, Alaska, the northernmost town in the United States, the record high temperature is  $79^{\circ}\text{F}$ , recorded on July 13, 1993. The record low is  $56^{\circ}\text{F}$  below zero, recorded on February 3, 1924. Represent these situations as signed numbers.
- |    |          |
|----|----------|
| a. | 79, 56   |
| b. | -79, -56 |
| c. | 79, -56  |
| d. | -79, 56  |
- \_\_\_\_\_ 5. While on vacation in Australia, Brent and Giselle decide to explore the Great Barrier Reef. Brent decides to go snorkeling near the surface at a depth of 5 feet below sea level. Giselle is an experienced scuba diver and decides to explore a little deeper at 80 feet below sea level. Represent these situations as signed numbers.
- |    |         |
|----|---------|
| a. | 5, 80   |
| b. | -5, -80 |
| c. | 5, -80  |
| d. | -5, 80  |

**Numeric Response**

1. Find the number of years between 69 B.C.E. and 25 C.E. (*Hint: Years B.C.E. are like negative numbers. Years C.E. are like positive numbers. There was no year 0.*)

**Short Answer**

1. Write a situation about a number and its opposite.



2. At three consecutive baseball games, a team official recorded the following attendance data. For which game is the absolute value of the difference from actual attendance the least? Explain.

	Actual Attendance	Difference from Average Attendance
Game 1	16,795	-16,450
Game 2	42,785	+9,540
Game 3	25,560	-7,685

3. Write an integer to represent a weight loss of 10 pounds.

### Problem

1. Use a signed number to represent each of the following situations. Then describe what 0 would mean in the same situation.

- Salazar dives to a depth of 73 feet.
- Nu deposits \$16.78 into her bank account.
- Overnight, the temperature drops by  $15^{\circ}\text{F}$ .

## Quiz-2 Answer Section

### MULTIPLE CHOICE

1.           ANS: C                   PTS: 1                   NAT: NT.CCSS.MTH.10.6.6.NS.5  
DOK: DOK 2
2.           ANS: B                   PTS: 1                   REF: MMT10724   NAT:  
NT.CCSS.MTH.10.6.6.NS.5  
LOC: NCTM 6-8.NOP.1.g           TOP: Comparing Integers  
KEY: negative | integer | positive   DOK: DOK 2
3.           ANS: C                   PTS: 1                   REF: M1.11.EN.ST.01  
NAT: NT.CCSS.MTH.10.6.6.NS.5   KEY: integer | negative integer  
DOK: DOK 2
4.           ANS: C

The given record high is above zero. Thus, it is represented using a positive number, 79.

The given record low is below zero. Thus, it is represented using a negative number, -56.

	Feedback
A	Consider whether the temperatures are above or below zero.
B	Consider whether the temperatures are above or below zero.
C	That's correct!
D	Consider whether the temperatures are above or below zero.

PTS: 1                    NAT: NT.CCSS.MTH.10.6.6.NS.5  
 KEY: positive numbers | negative numbers | signed numbers            DOK: DOK 1  
 NOT: low/high temp: [http://en.wikipedia.org/wiki/Barrow,\\_Alaska](http://en.wikipedia.org/wiki/Barrow,_Alaska)  
 5.                    ANS: B

Since Brent and Giselle are both below sea level, both depths can be represented by negative numbers,  $-5$  and  $-80$ .

	<b>Feedback</b>
<b>A</b>	Consider that both Brent and Giselle are below sea level.
<b>B</b>	That's correct!
<b>C</b>	Consider that both Brent and Giselle are below sea level.
<b>D</b>	Consider that both Brent and Giselle are below sea level.

PTS: 1                    NAT: NT.CCSS.MTH.10.6.6.NS.5                    KEY: negative numbers | signed numbers  
 DOK: DOK 1

### NUMERIC RESPONSE

1.                    ANS: 93

PTS: 1                    REF: 936389a3-9631-11dd-8a40-001185f11039  
 NAT: NT.CCSS.MTH.10.6.6.NS.5                    LOC: MTH.C.06.02.001  
 TOP: Adding Integers                    DOK: DOK 2

### SHORT ANSWER

1.                    ANS:  
 Possible Answer:  
 Johnny has 8 toy cars. He gave away 8 toy cars.

PTS: 1                    NAT: NT.CCSS.MTH.10.6.6.NS.5                    DOK: DOK 2  
 2.                    ANS:

	<b>Actual Attendance</b>	<b>Difference from Average Attendance</b>	<b>Absolute Value</b>
<b>Game 1</b>	16,795	$-16,450$	16,450
<b>Game 2</b>	42,785	$+9,540$	9,540
<b>Game 3</b>	25,560	$-7,685$	7,685

Game 3 had the attendance difference with the least absolute value, since 7685 is closest to zero.

PTS: 1                    REF: 95323bef-9631-11dd-8a40-001185f11039  
 NAT: NT.CCSS.MTH.10.6.6.NS.5                    LOC: MTH.C.01.03.09.001 | MTH.C.01.03.09.002  
 TOP: Integers                    KEY: absolute value                    DOK: DOK 2  
 3.                    ANS:

PTS: 1 REF: MMT10655 NAT: NT.CCSS.MTH.10.6.6.NS.5  
TOP: Comparing Integers KEY: integer | word | write  
DOK: DOK 2

**PROBLEM**

1. ANS:
- a.  $-73$ ; 0 represents sea level
  - b.  $16.78$ ; 0 represents no withdrawal or deposit
  - c.  $-15$ ; 0 represents no change in temperature

**Rubric**

- a. 1 point for signed number; 1 point for interpreting 0
- b. 1 point for signed number; 1 point for interpreting 0
- c. 1 point for signed number; 1 point for interpreting 0

PTS: 6 NAT: NT.CCSS.MTH.10.6.6.NS.5 | NT.CCSS.MTH.10.K-12.MP.2  
KEY: positive numbers | negative numbers | signed numbers | zero  
DOK: DOK 1

## References

Goldsmith, P. A. (2006). Learning to understand inequality and diversity: Getting students past ideologies. *Teaching Sociology*, 34(3), 263-277.