

## SC READY Math Grades 3-4 2019 Data Review Report

In October 2019, the South Carolina Department of Education convened a panel of experts to review item data on the Spring 2019 SC READY Mathematics assessment for grades 3-4. The panel looked at items with a high percentage of students answering correctly and items with a low percentage of students answering correctly. The discussions of that panel yielded the following recommendations.

***The panel recognizes the hard work of SC educators and offers the following as suggestions for ways to improve student success on the SC READY Mathematics assessment for grades 3 and 4.*** Teachers on this year's panel felt that last year's suggestions were still extremely relevant and that teachers should be reminded to look at last year's [Data Review Report \(2018\)](#). The panel offers these suggestions as an addendum to those from last year.

### General Feedback-

Teachers should provide students with instruction on all standards:

Definition: "Each Key Concept contains standards that define what students will understand and be able to do. Some standards are supported by lettered standards. For a comprehensive understanding, educators should always refer to the overarching standards as they are relative to the lettered standards" (SCCCRS Mathematics 2015, pg. 5).

Explanation: Students are expected to have working knowledge of all standards, including the lettered standards. All standards, including the lettered standards will be assessed on the SC READY assessment.

The SC READY Blueprint provides a range of items for each Key Concept. The ranges for Key Concepts correlate with the number of standards and lettered standards that are provided at each grade level.

The Mathematical Process Standards are the skills that are embedded into the SC READY items. Incorporating the Mathematical Process Standards into instruction will allow teachers to teach to the depth and breadth of each standard and lettered standard. Teachers should be teaching to the depth and breadth of each standard and lettered standard during instruction to meet the demands of the increased rigor that is expected in mathematics instruction.

Sample Release Items: The Sample Release Items provide insight into ways that the knowledge from the content standards and skills from the Mathematical Process Standards are incorporated into assessment items. This does not mean that this is the only way that these standards will be assessed, but it does provide understanding into how the standards (including lettered standards) and Mathematical Process Standards are incorporated into the items.

Students should be comfortable understanding and applying mathematical language as it will be used on the assessment.

## **Grade 3**

### **Number Sense and Base Ten**

Areas of Strength:

- Students were successful on items that involved rounding numbers.
- Students did well correctly identifying numbers written in word form and standard form.

Students need additional support:

- solving expressions to compare numbers. For example, students should practice using a sentence to compare (using the symbols  $<$ ,  $>$ ,  $=$ ) an expression (addition or subtraction of numbers) to a number on the other side.
- comparing numbers up to 6 digits.
- ordering multiple numbers using the comparison symbols.

### **Number Sense- Fractions**

Areas of Strength:

- Students did well identifying the correct fraction when given context.
- Students showed evidence of making sense of fractions when given context.

Students need additional support:

- creating their own visuals when given fractions in context. Move students beyond only using fraction circles as models.
- locating fractions on a number line. Use a number line with points labeled and a number line without points labeled.
- using a number line to represent mixed fractions and locating points on a number line that are greater than 1.
- using models to represent equivalent fractions.

### **Algebraic Thinking and Operations (ATO)**

Areas of Strength:

- Students do well with dividing items into equal groups when given context.
- Students understand fact families and are able to identify them.
- Students understand repeated addition as a strategy to solve multiplication problems.

Students need additional support:

- using number line models for multiplication and division facts. Meaning, they should be able to identify an appropriate number line when given context.

- solving equations where the product or quotient is placed before the equal sign.
- finding unknowns in multiplication and division equations.
- understanding that the equal (=) sign means “the same as” or “is”.
- using the Associative Property of Multiplication to simplify expressions (sentences that do not include an equal sign).
- understanding the vocabulary used in operations. Students should understand the terms: factor, product, remainder, quotient, divisor, and dividend.
- knowing how to use the Distributive Property to multiply a single digit number by a two digit number.
- continuing number patterns that begin with digits other than 1. Students should follow the pattern in its entirety to ensure they are selecting the correct answer.

## **Geometry**

Areas of Strength:

- Students do well using a right angle as a benchmark to identify acute and obtuse angles.
- Students are able to identify shaded fractions on a given shape.

Students need additional support:

- identifying quadrilaterals by their definition.
- partitioning two-dimensional shapes to represent fractions. Students should have an understanding of the numerator and denominator in relation to the shape that is partitioned.
- with recognizing angle types in real-world situations. Have students identify angles in the alphabet or objects found in the classroom to assist with this.

## **Measurement and Data Analysis**

Areas of Strength:

- Students did well solving elapsed time items in context without visuals.
- Students performed well on items where they had to determine the area in square units of regular shapes.

Students need additional support:

- identifying time on both analog and digital clocks. Students should be able to read a scenario that gives an elapsed time situation and then apply the knowledge from the scenario to the question that they are being asked.
- interpreting data from a graph. Have students pay close attention to the increments given on each graph.
- finding area by counting unit squares on shapes that are irregular.
- finding missing side lengths when given context. For example, students should be able to compare shapes that have the same perimeter and be able to determine the missing side length of one of the shapes.

## **Grade 4**

### **Number Sense and Base Ten**

Areas of Strength:

- Students are comfortable writing numbers in standard form and word form.
- Students are able to add and subtract multi-digit numbers.
- Students did well with multiplication when given context.

Students need additional support:

- identifying the value of digits in larger numbers. Use expanded form to compare the value of numbers to assist with this.
- determining if a number is accurately rounded. Students should be using rounding as a form of estimation.
- with reasoning to determine the correct use of a given strategy (rectangular array and area model) when multiplying. Standard algorithm is not expected until grade 5.
- with dividing numbers up to a four-digit dividend and determining if there is a remainder. Exploring the Divisibility Rules will assist with this. Also, teach multiplication and division as inverse operations.
- understanding the term expression. Students should be comfortable analyzing an expression when given context.

### **Number Sense and Operations- Fractions**

Areas of Strength:

- Students did well identifying the correct model to represent a fraction when given context.
- Students were able to identify the corresponding fraction to a given decimal number.
- Students are comfortable comparing decimals when given a number line.

Students need additional support:

- using models to show equivalent fractions. Students should be able to compare models to determine the equivalency.
- comparing fractions by using a benchmark fraction. Students should be comfortable using the symbols ( $<$ ,  $>$ ,  $=$ ) when comparing fractions.
- adding fractions where one denominator is 10 and the other is 100. Students should understand how to create an equivalent fraction to create the same denominator in order to add together two fractions.
- lining up decimals when comparing them. For example, students should understand that 3.5 and 3.50 are equivalent.

## **Algebraic Thinking and Operations**

Areas of Strength:

- Students did well identifying unknowns in multiplication and division problems.
- Students demonstrated knowledge of their multiplication facts.

Students need additional support:

- applying the vocabulary used to describe prime, composite, factors, and multiples when given context. For example, students should be able to compare multiple factors in a set and describe if they are prime or composite. In addition, students should be able to identify multiples of numbers.
- extending patterns and identifying terms later in a sequence. Students should be able to identify rules for patterns that are implied in grade 4 because students began to identify the rules for patterns in grade 3.

## **Geometry**

Areas of Strength:

- Students are able to identify a given angle when given context.
- Students are doing well identifying lines of symmetry.

Students need additional support:

- identifying the different types of lines (parallel and perpendicular) in real world objects. For example, students should be able to identify the types of lines they see inside the classroom, school, or playground.
- classifying quadrilaterals. Students should be comfortable providing all of the names that classify a shape.

## **Measurement and Data Analysis**

Areas of Strength:

- Students did well determining the value of money when given a picture of the collection of coins and bills.
- Students are able to find elapsed time when given context. Students demonstrated knowledge of T-charts and number lines to solve these items.

Students need additional support:

- converting in both the customary and metric systems. Students are responsible for all of the units that are listed in the standard.
- relating degree measurement to a circle. Students should be able to demonstrate a  $360^\circ$ ,  $180^\circ$ ,  $90^\circ$ , and  $45^\circ$  turn. Skills that are used for skateboarding can be used as an example.
- solving for an unknown angle. Students should be comfortable composing and decomposing angles. A strip diagram can be used to assist students with this.