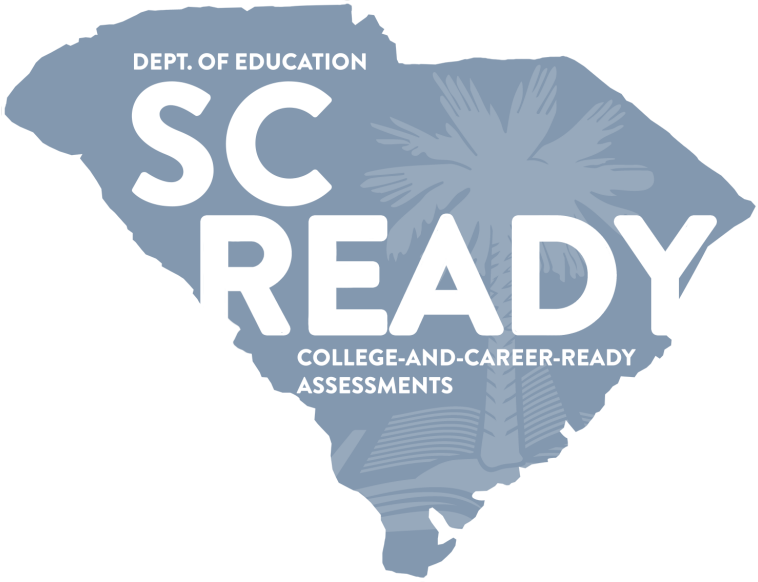
SOUTH CAROLINA
DEPARTMENT OF EDUCATION



Mathematics Assessment Specifications for Teachers
4th Grade

Office of Assessment and Standards

Updated September 2026

South Carolina Department of Education

Introduction

The SC READY Mathematics Assessment Specifications for Teachers is based upon the development of the South Carolina College- and Career-Ready Assessments (SC READY) that measures the 2025 South Carolina College- and Career-Ready (SC CCR) Mathematics Standards. The assessment specifications provide important information regarding the content to be measured. The assessment specifications also serve as a road map to guide South Carolina educators in the development and subsequent review of items that best measure the 2025 SC CCR Math Standards for a given grade-level. These documents are intended as a guide for item developers working in and with the Office of Assessment and Standards and not as a curriculum or instructional guide. The information found within these documents reflects the content limits and the foundational knowledge targets addressed by the state assessment. *Please note: This document is reviewed and updated annually to ensure alignment with current standards and assessment practices*.

Each item specification is aligned to the given strand, standard, and grade-level indicator, and includes the following key information:

- Example Tasks
- Assessment Guidelines
- Webb's Depth of Knowledge (DOK) or cognitive level(s)
- Item types

Assessment Specifications Descriptions

Strands: This document is divided into four major strands: Data, Probability, and Statistical Reasoning (DPSR); Measurement, Geometry, and Spatial Reasoning (MGSR); Numerical Reasoning (NR); and Patterns, Algebra, and Functional Reasoning (PAFR).

Standards and Indicators: According to the *Procedures for Cyclical Review of South Carolina Academic Standards*, "academic standards are statements of the most important, consensually determined expectations for student learning in a particular discipline. Each of the newly revised South Carolina standards statements will be supported by specific instructional objectives called indicators" (Barton & Spearman, 2016). Each standard contains one or more vertically articulated grade-level indicators. The grade-level indicators set the end-of-year learning expectation.

***Math Vocabulary for Assessment*:** The words included are academic terms related to the assessment. It is important to note that the Math Vocabulary for Assessment is not an exhaustive list. The lists are not intended to be used by educators for memorization purposes in the classroom.

Indicator Insights: Indicator Insights provide an understanding of the indicator for the classroom teacher. These insights provide teachers with clarifying information about the expectations and/or the content of the indicator. Some insights may provide connections to indicators in other standards or strands.

Example Tasks: The intent of this section is to describe examples of how the attached indicator may be assessed. The example tasks are not an exhaustive list.

Assessment Guidelines: Parameters that define the learning expectations. These guidelines provide a measurable framework for assessing student's knowledge, skills, and abilities; however, classroom work should extend beyond these limits. Prior knowledge such as key words/terms, phrases, classifications, etc., from previous grade level standards is an expectation and may be assessed in test items.

Depth of Knowledge (DOK): Depth of knowledge involves the cognitive complexity, or the nature of thinking, required for a given item. Webb's DOK levels are used in the development of items to assess cognitive demand. Therefore, when developing items with DOK in mind, each item should be as demanding cognitively as what the actual standard describes. Webb's DOK includes four levels, arranged from low (basic recall) to high (extended thinking). Each item in the Mathematics SC READY assessment is written to one of the following three levels of cognitive complexity:

- Level 1: Recall
- Level 2: Application of a Skill/Concept
- Level 3: Strategic Thinking

Item Types

Selected-Response (SR) Items: SR items have four answer choices, including three distractors and one correct answer. Distractors for mathematics represent common misconceptions, incorrect logic, or incorrect understanding of a text, etc. A correct response to an SR item is worth one score point in the Mathematics SC READY assessment.

Technology-Enhanced (TE) Items: TE items (new for Grades 3-5) share the same functional structure as traditional test items. All items are worth one score point. TE items include, but are not limited to, the following:

Type of Item	Description
Drag and Drop Input	Students click on selectable objects and sort them into groups, steps, or other arrangements to demonstrate their knowledge. Some examples of selectable objects include single numerical values, numerical expressions or equations, graphs, statements, operational signs, geometric figures, and tables.
Drop-Down Input	Students are expected to select their response from a drop-down list or drop-down menu.
Hot Spot	Students interact with selectable objects to demonstrate their knowledge, skills, and abilities to answer a question. Selectable objects include whole or parts of figures, graphs, tables, verbal descriptions, or symbolic representations.
Matching	Students demonstrate their knowledge by connecting a line from each response in a set of graphics on the left side of the screen to a response in a set of graphics on the right side of the screen.
Match Interaction Table	Students are presented with a matrix consisting of mathematical or English statements across the columns and rows. Students demonstrate their knowledge by selecting one or more correct answers per row to associate correct statements in the matrix.

Technology-Enhanced (TE) Constructed-Response Items: TE Constructed-Response items (new for Grades 3-5) require students to construct their own response, rather than selecting from predetermined options. All items are worth one score point. TE Constructed-Response items include, but are not limited to, the following:

Type of Item	Description
Keypad Input	Students are presented with an item. The student is asked to respond by writing their numerical answers or writing a mathematical expression or equation to answer the item.
Bar Graph Input	Students are presented with an item. The students demonstrate their knowledge by selecting the height of each bar to create a bar graph.
Clock	Students are presented with an item that includes a clock missing the minute and hour hands. The student is expected to respond by selecting the correct locations of the hour hand and minute hand on an analog clock face.
Dot Plot Input	The student is presented with a line graph. The student is expected to respond by plotting data points to create a correct dot plot.
Graphing Input	The student is presented with a graph. The student is expected to respond by plotting points, drawing a line, or labeling parts of the graph.

Calculator

Calculators will not be used in Grades 3-5 for SC READY Math.

Editorial Suggestions

If you have editorial suggestions for annual edits on this document, please complete our form: Mathematics Assessment Specifications for Teachers Editorial Suggestions located on our Quick Links for Teachers page, or scan the QR code.



Acknowledgment

SCDE OAS would like to thank the South Carolina teachers and content specialists who have served on our various assessment committees. Without your expertise and input, this resource would not have been possible.

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Data, Probability, and Statistical Reasoning (DPSR)

Standard 4.DPSR.1

Create questions, collect and analyze data, and communicate interpretations through multiple representations.

Math Vocabulary for Assessment: bar graph, categorical data, dot plot. fourth(s), half/halves, numerical data, picture graph, scale, survey, and table.

Indicator	**4.DPSR.1.1** Collect and organize numerical and categorical data based on observations, investigations, surveys, and experiments using tables, scaled bar graphs, or dot plots. Use titles and labels. Scales to include whole numbers, halves, and fourths.
Indicator Insight	Students need to be aware of which graph is the best fit for the given data. Represent numerical data using dot plots and bar graphs. Represent categorical data using bar graphs. Integrate data collection with science and social studies content. Connect measurement data to fractions.
Assessment Specifications	
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • collect data based on measurements, or information provided. • create data displays based on categorical or numerical data. • determine the scale used for a scaled bar graph based on the data provided.
Assessment Guidelines	SC READY items will focus on data displays that use whole numbers, halves, and fourths. Students should work with tables, scaled bar graphs, and dot plots. For SC READY items, it is okay for categorical data to be shown in a dot plot.
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Indicator	**4.DPSR.1.2** Solve one-step, real-world situations using whole number and fractional data represented in tables, scaled picture graphs, scaled bar graphs, or dot plots. Limit to like denominators of 2, 3, 4, 5, 6, 8, and 10.
Indicator Insight	Use the data collected to answer questions.
4.DPSR.1.2	**Assessment Specifications**
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • solve one-step, real-world situations using data shown in a data display. • answer questions related to the data display.
Assessment Guidelines	SC READY items will focus on data displays with fractions with denominators of 2, 3, 4, 5, 6, 8, and 10. Displays should be in the form of tables, scaled picture graphs, scaled bar graphs, or dot plots. Avoid outliers in the data. When interpreting the key to a scaled graph, SC READY items will not consider this a step in solving the problem.
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Standard 4.DPSR.2

Represent the probability of simple events and determine possible outcomes.

Math Vocabulary for Assessment: certain, fair *n*-sided game piece, fair number cube, impossible, outcome, possible, probability, and simple event.

Indicator	**4.DPSR.2.1** Determine the possible outcomes of a simple event and record the probability as certain, possible, or impossible.
Indicator Insight	A simple event could include, but is not limited to, spinning a spinner, tossing a die, drawing one card, or flipping a coin.
4.DPSR.2.1 Assessment Specifications	
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • determine possible outcomes for a simple event. • record the probability as certain, possible, or impossible.
Assessment Guidelines	Students are expected to see a variety of types of spinners including ones with colors, pictures, and numbers. For SC READY items, the terms fair number cube or fair *n*-sided game piece will be used instead of "die" (singular form of dice). The term "certain" could be described as something that will happen. • *Example:* After rolling a fair number cube, it is certain that an even or odd number is rolled. The term "possible" could be described as something that might happen, but it is not guaranteed. • *Example:* After rolling a fair number cube, it is possible to roll a 4. The term "impossible" could be described as something that cannot happen. • *Example:* Rolling a 7 on fair number cube is impossible. Students are not expected to know the term "sample space." Students are not expected to calculate the probability of an event.
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Measurement, Geometry, and Spatial Reasoning (MGSR)

Standard 4.MGSR.1

Solve area and perimeter problems in real-world and mathematical situations.

Math Vocabulary for Assessment: area, perimeter, square unit(s), and unit(s).

Indicator	**4.MGSR.1.1** Apply perimeter formulas for rectangles to solve real-world situations including finding the perimeter given the side lengths, and finding an unknown side length.
Indicator Insight	Students are not expected to find the perimeter of a composite figure. Provide opportunities for students to use square tiles, grid paper, and/or dot paper.
4.MGSR.1.1	**Assessment Specifications**
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • apply the perimeter formula to find perimeter of rectangles. • solve real-world situations with perimeters of rectangles. • find an unknown side length.
Assessment Guidelines	Students are expected to know the formula for perimeter. SC READY items will focus on finding perimeter of rectangles only, this does not include composite figures.
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Indicator	**4.MGSR.1.2** Apply area formulas for rectangles to solve real-world situations. Use square units to label area measurements.
Indicator Insight	Explore area as an attribute that involves the covering of two-dimensional space. Provide opportunities for students to use square tiles, grid paper, and/or dot paper.
4.MGSR.1.2 Assessment Specifications	
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • apply the area formula to rectangles. • solve real-world situations using the area of rectangles. • appropriately label area.
Assessment Guidelines	Determining the correct response will require an understanding of area of rectangles. Students should be familiar with the abbreviation for square units (sq. units). Students are not expected to use exponential notation (un^2).
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Standard 4.MGSR.2

Estimate and measure using units of length, liquid volume, weight, currency, and intervals of time.

Math Vocabulary for Assessment: AM, analog, coin(s), convert/conversion, cup(s), customary unit(s), dollar(s), elapsed time, end time, estimate, feet, fluid ounce(s), gallon(s), gram(s), inch(es), interval(s), kilogram(s), length, liquid volume, metric unit(s), ounce(s), pint(s), PM, pound(s), quart(s), quarter inch, start time, volume, weight, and yard(s).

Indicator	**4.MGSR.2.1** Calculate the value of a collection of coins and bills in real-world situations to determine whether there is enough money to make a purchase. Justify based on comparison of money amounts.
Indicator Insight	The expectation is not to solve using decimal operations or to determine how much change is given.
4.MGSR.2.1	**Assessment Specifications**
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • determine the value of a mixed collection of coins, not to exceed $5, and bills, not to exceed $100, from a verbal description. • determine the value of a mixed collection of coins, not to exceed $5, and bills, not to exceed $100, from a pictorial representation. • determine if there is enough money for a purchase. • compare two values of money.
Assessment Guidelines	Students are expected to be familiar with the fronts and backs of coins, particularly in black and white. Students should recognize the value of any coin amongst a mixed collection of like and unlike coins. Students are not expected to find the difference between two values of money, or to find the amount remaining after a purchase. Students determine which amount is more, or if there is enough money. Encourage students to use strategies to find the value without decimal operations.
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Indicator	**4.MGSR.2.2** Solve real-world situations involving addition and subtraction of time intervals within 60 minutes to find elapsed time, start time, or end time.
Indicator Insight	Times can cross over the hour. Provide exposure to solving time problems using a number line.
4.MGSR.2.2 Assessment Specifications	
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • determine the elapsed time given a start and end time. • determine the end time given a start time and elapsed time. • determine the start time given an end time and elapsed time. • add time or subtract time to solve problems. • combine elapsed time from multiple events to solve problems. • read an analog or digital clock to determine a start or end time to solve a problem involving elapsed time.
Assessment Guidelines	Students are expected to be familiar with multiple representations of ante meridiem (AM, A.M., am, a.m.) and post meridiem (PM, P.M., pm, p.m.) but not the terms *ante meridiem* or *post meridiem*. Students should understand quarter to and quarter after. Students should be able to do elapsed time problems that cross over noon or midnight, or similar time frames that go from A.M. to P.M. SC READY items will focus on intervals within 60 minutes, which does not mean from the start of an hour to the end of an hour (for example 1:00 to 2:00) it means any 60-minute interval (for example 1:10 to 2:10).
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Indicator	**4.MGSR.2.3** Measure length to the nearest quarter inch.
Indicator Insight	Make connections to equivalent fractions. Provide opportunities to see a ruler as a number line.
Assessment Specifications	
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • place a ruler appropriately. • measure objects to the nearest quarter inch.
Assessment Guidelines	Students are expected to be able to measure objects oriented in any direction, as well as recognize the measurement of an object when the ruler begins at a place other than zero. Students will be expected to use the embedded online ruler found on the Online Tools Training (OTT) from the DRC Insight Assessment platform. The ruler will be a quarter inch ruler. Students are expected to be familiar with the abbreviation for inches (in.).
DOK(s)	1, 2
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Indicator	**4.MGSR.2.4** Measure weight in customary units and metric units to the nearest whole unit. Limit to ounces, pounds, grams, and kilograms.
Indicator Insight	This is the first exposure to weight. Use physical models including balances and scales. Expose students to both the words and abbreviations for units of measure.
4.MGSR.2.4	**Assessment Specifications**
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • read scales, balance or similar physical models used to measure weight. • add or subtract weights within the same units to solve problems.
Assessment Guidelines	Students are expected to be familiar with the abbreviations for each measurement: oz. – ounces; lb. – pounds, g. – grams; kg. – kilograms. Students are expected to be able to consider the reasonableness of their answer with respect to understanding that ounces are smaller than pounds and grams are smaller than kilograms. Students are not expected to convert or know the conversion rates.
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Indicator	**4.MGSR.2.5** Convert customary units of length, weight, and liquid volume from a larger unit to a smaller unit, given direct comparisons of the two measurements and/or the unit equivalencies within a single system of measurement. Limit to inches, feet, yards, ounces, pounds, fluid ounces, cups, pints, quarts, and gallons when given unit equivalences.
Indicator Insight	Connect to multiplication and function (input/output) tables and discuss reasonableness based on size of units. Expose students to both the words and abbreviations for units of measure.
4.MGSR.2.5	**Assessment Specifications**
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • determine the resulting unit from a conversion. • convert from a larger unit to a smaller unit in the customary system.
Assessment Guidelines	Students are provided with a reference sheet for the conversions (see Appendix: Student Reference Sheet). SC READY items will focus on inches, feet, yards, ounces, pounds, fluid ounces, cups, pints, quarts, and gallons when given unit equivalencies. Students are expected to be familiar with the abbreviations for each measurement: in. – inches; ft. – feet; yd. – yard; oz. – ounce; lb. – pound; fl. oz. – fluid ounces; c. – cup; pt. – pint; qt. – quart; gal. – gallon. SC READY items will be limited to conversions within one measurement system.
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Standard 4.MGSR.3

Extend geometric reasoning to attributes of polygons and/or polyhedrons.

Math Vocabulary for Assessment: acute angle, attribute(s), classify, congruent, equiangular, equilateral triangle, isosceles triangle, kite, obtuse angle, parallel line(s), parallelogram, perpendicular line(s), quadrilateral, rectangle, rhombus, right angle, right triangle, square, scalene triangle, and trapezoid.

Indicator	**4.MGSR.3.1** Classify triangles according to side length (isosceles, equilateral, scalene) and angle measure (acute, obtuse, right, equiangular).
Indicator Insight	Attributes include number of sides and angles, parallel and perpendicular line segments, and acute, right, and obtuse angles. Include exposure to geometric symbols associated with lines, angles, etc. Use the term "congruent" to refer to sides of equal length. An isosceles triangle is a triangle that has 2 equal sides. An equilateral triangle can be classified as both equilateral and isosceles because it meets the definition for both.
4.MGSR.3.1	**Assessment Specifications**
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • classify triangles
Assessment Guidelines	Students are expected to be able to determine acute, obtuse, and right by comparison to benchmark items like the corner of a piece of paper (right angle). Students should be familiar with seeing tick marks to denote congruent sides or labeled measurements to denote equal length. Assessment should focus on classifying isosceles, equilateral, scalene, acute, obtuse, right, and equiangular triangles. SC READY items may include multiple triangles. Students are not expected to measure the angles with a protractor.
DOK(s)	1, 2
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Indicator	**4.MGSR.3.2** Classify quadrilaterals in a hierarchy based on their shared attributes.
Indicator Insight	Attributes include number of sides and angles, parallel and perpendicular line segments, and acute, right, and obtuse angles. Include exposure to geometric symbols associated with lines, angles, etc. A trapezoid is defined as a quadrilateral with exactly one pair of parallel sides.
4.MGSR.3.2	**Assessment Specifications**
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • describe the attributes of quadrilaterals. • compare quadrilaterals. • draw quadrilaterals based on a list of attributes. • classify quadrilaterals in a hierarchy.
Assessment Guidelines	Students are expected to describe a trapezoid using the exclusive definition; a quadrilateral with exactly one pair of parallel sides. Students are expected to be able to classify all quadrilaterals, including but not limited to parallelograms, rectangles, rhombi, squares, trapezoids, and kites. Students should be exposed to concave figures and non-examples, including other polygons. Students will not be expected to classify quadrilaterals using a triple Venn diagram. Students should be able to use tables to sort quadrilaterals by their classification.
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Numerical Reasoning (NR)

Standard 4.NR.1

Represent and compare numbers using relationships within the base ten number system.

Math Vocabulary for Assessment: ascending, benchmark, compare, compose, decompose, descending, digit, equation, estimate, expanded form, expression, hundred(s), hundred-million(s), hundred-thousand(s), is equal to (=), is greater than (>), is less than (<), linear model, million(s), model, one(s), period, place value, round, standard form, ten(s), ten-million(s), ten-thousand(s), thousand(s), and word form.

Indicator	**4.NR.1.1** Read and write whole numbers through the millions period (0 to 999,999,999) in word, standard, and equations in expanded form.
Indicator Insight	Provide experiences to see that the sequence of three digits separated by commas is referred to as a "period." Emphasize where commas should be placed in a number up to 999,999,999.
4.NR.1.1	**Assessment Specifications**
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • read and write numbers in standard, word, or expanded form. • convert from one form of a number to another form between standard, word, and expanded form. • read and write whole numbers using word form, standard form, and equations in expanded form.
Assessment Guidelines	Students are expected to know the ones, thousands, and millions periods. Students are expected to be exposed to expanded form where the equation is not in ascending or descending form. SC READY items will focus on whole numbers from 0 to 999,999,999.
DOK(s)	1, 2
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Indicator	**4.NR.1.2** Estimate sums, differences, products, and quotients of multi-digit whole numbers, using rounding and place value to determine the reasonableness of real-world problem solutions. Write an equation for the estimate.
Indicator Insight	Round to solve. Use strategies including but not limited to front-end estimation. Write an equation for an estimation and compare it to the answer to determine if the answer is reasonable. The magnitude of numbers used for this indicator should be consistent with the indicators for the four operations. Consider reasonableness of solutions in real-world situations: over rounding or under rounding, situations of interpreting rounding.
4.NR.1.2	**Assessment Specifications**
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • estimate the sum of multi-digit whole numbers. • estimate the difference of multi-digit whole numbers. • estimate the product of multi-digit whole numbers. • estimate the quotient of multi-digit whole numbers. • write an equation to represent an estimate. • determine the reasonableness of an estimate in real-world situations.
Assessment Guidelines	Students are expected to round to help solve and compare to determine the reasonableness of the solution, rather than rounding the final answer.
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Indicator	**4.NR.1.3** Order whole numbers within 999,999 (no more than 3) in ascending or descending order and record the comparison(s) using symbols for is less than (<) and/or is greater than (>).
Indicator Insight	Use scaled number lines with limited range for positioning numbers.
4.NR.1.3	**Assessment Specifications**
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • order numbers in ascending or descending order. • write comparison statements using <, >. • determine which number is smaller or larger than a given number.
Assessment Guidelines	Students are expected to know that 300 < 400 is the same as 400 > 300. SC READY items will focus on whole numbers within 999,999 and no more than 3 numbers when ordering numbers.
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Standard 4.NR.2

Represent and compare fractions in multiple ways using part-whole relationships.

Math Vocabulary for Assessment: area model, benchmark, compare, compose, decimal, decompose, denominator, equivalent, fraction, fractions greater than one (improper fraction), hundredth(s), is equal to (=), is greater than (>), is less than (<), like/unlike denominators, linear model, mixed number, model, numerator, tenth(s), and word form.

Indicator	**4.NR.2.1** Represent fractions with denominators of 10 and 100 in words, models, and decimal notations.
Indicator Insight	Use manipulatives including decimal grids (10x10) and base ten blocks. Connect money to decimals.
4.NR.2.1	**Assessment Specifications**
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • represent fractions with denominators of 10 and 100 in words, models, and decimal notations. • convert from one representation to another.
Assessment Guidelines	Students are expected to see items with and without context.
DOK(s)	1, 2
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Indicator	**4.NR.2.2** Compare decimal numbers to the hundredths using the benchmarks 0, 0.5, and 1.0, concrete, area, and linear models. Use the symbols for is equal to (=), is less than (<), and/or is greater than (>).
Indicator Insight	Compare whole numbers to decimals and decimals to decimals using base ten materials and number lines. Provide experiences placing decimal numbers on a number line. Number lines should be scaled and include a limited range. Use reasoning strategies to sort the decimals into categories of less than or greater than $\frac{1}{2}$. Have students explain their thinking for the placements.
4.NR.2.2	**Assessment Specifications**
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • represent decimals using concrete, area, and linear models. • compare decimal numbers to benchmarks of 0, 0.5 and 1.0. • write comparisons using the symbols <, >, and =.
Assessment Guidelines	Students are expected to know that 0.5 is equivalent to 0.50. SC READY items will focus on decimals to the hundredths place.
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Indicator	**4.NR.2.3** Generate equivalent fractions, including fractions greater than 1, using multiple representations. Limit fractions to denominators of 2, 3, 4, 5, 6, 8, 10, 12, 20, 25, 50, and 100.
Indicator Insight	Multiple representations should include concrete, area, and linear models. Explain the Identity Property of Multiplication as it relates to equivalent fractions $\frac{a \times n}{b \times n}$, where $\frac{n}{n} = 1$. Encourage students to find the patterns of the numerators and denominators of equivalent fractions. They should discover the patterns through exploration rather than being told. Provide opportunities for students to fold and shade an area. Students continue to fold, noticing the amount of area shaded does not change.
4.NR.2.3	**Assessment Specifications**
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • represents fractions using models (fractions beyond 2, 3, 4, 6, 8). • identify two models that represent equivalent fractions. • create equivalent fractions.
Assessment Guidelines	Students are expected to be familiar with improper fractions and mixed numbers. SC READY items will focus on fractions with denominators of 2, 3, 4, 5, 6, 8, 10, 12, 20, 25, 50, and 100.
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Indicator	**4.NR.2.4** Represent the composition and decomposition of fractions with the same denominator, including mixed numbers and fractions greater than 1, using multiple representations. Limit fractions to denominators of 2, 3, 4, 5, 6, 8, 10, 12, 20, 25, 50, and 100.
Indicator Insight	This indicator connects to indicator 4.NR.2.5 to help students understand the conversion of mixed numbers and fractions greater than 1/improper fractions. Models play a vital role in building this understanding.
4.NR.2.4	**Assessment Specifications**
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • represent composition and decomposition of fractions with the same denominator.
Assessment Guidelines	Students are expected to be familiar with improper fractions and mixed numbers. Students are expected to decompose using a variety of fractions to include unit fractions but not limited to unit fractions. SC READY items will focus on fractions with denominators of 2, 3, 4, 5, 6, 8, 10, 12, 20, 25, 50, and 100.
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Indicator	**4.NR.2.5** Explain and demonstrate how a mixed number is equivalent to a fraction greater than 1 and how a fraction greater than 1 is equivalent to a mixed number. Limit fractions to denominators of 2, 3, 4, 5, 6, 8, 10, 12, 20, 25, 50, and 100.
Indicator Insight	Use models and reasoning strategies to teach concepts. Provide experiences to connect fractions to division. The expectation in this standard is not for students to formally convert between a mixed number and a fraction greater than 1/improper fraction. Both should be represented using visual representations.
4.NR.2.5	**Assessment Specifications**
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • represent a mixed number with a model. • demonstrate how a mixed number and a fraction greater than 1 are equivalent. • explain how a mixed number and a fraction greater than 1 are equivalent.
Assessment Guidelines	SC READY items will focus on fractions with denominators of 2, 3, 4, 5, 6, 8, 10, 12, 20, 25, 50, and 100. Avoid items that ask for a "conversion." Items may ask for equivalencies.
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Indicator	**4.NR.2.6** Compare fractions and mixed numbers with like and unlike denominators applying benchmark fractions such as 0, $\frac{1}{2}$, and 1 using the symbols for is equal to (=), is less than (<), or is greater than (>). Limit fractions to denominators of 2, 3, 4, 5, 6, 8, 10, 12, 20, 25, 50, and 100.
Indicator Insight	Use reasoning strategies to sort the fractions into categories of less than or greater than $\frac{1}{2}$. Have students explain their thinking for the placements. Clarify using equivalence to scale fractions up or down to compare.
4.NR.2.6	**Assessment Specifications**
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • compare fractions to benchmarks of 0, $\frac{1}{2}$, and 1. • compare fractions and mixed numbers. • write comparisons using the symbols <, >, and =.
Assessment Guidelines	Students are expected to be able to compare fractions with like and unlike denominators. SC READY items will focus on fractions with denominators of 2, 3, 4, 5, 6, 8, 10, 12, 20, 25, 50, and 100.
DOK(s)	2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Patterns, Algebra, and Functional Reasoning (PAFR)

Standard 4.PAFR.1

Use multiple representations to reason and solve problems involving operational properties of whole numbers and decimals.

Math Vocabulary for Assessment: addition, compute, difference, divide, dividend, divisor, equation, expression, factor, multiply, product, quotient, remainder, subtraction, and sum.

Indicator	**4.PAFR.1.1** Use a strategy to accurately compute sums and differences of whole numbers up to 100,000 and justify the sum or difference.
Indicator Insight	Strategies should consist of multiple approaches including, but not limited to, a standard algorithm. Provide opportunities to select and use the strategy that is most efficient.
4.PAFR.1.1 Assessment Specifications	
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • determine the sum of whole numbers up to 100,000. • determine the difference of whole numbers within 100,000. • justify the sum or difference.
Assessment Guidelines	Students are expected to be familiar with a variety of strategies and should not be assessed on a specific strategy. SC READY items will focus on whole numbers up to 100,000, which means the sum must be less than or equal to 100,000 and the minuend must be less than or equal to 100,000.
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Indicator	**4.PAFR.1.2** Compute the product of a one-digit whole number times a multiple of 10 (from 10 to 90) and 100 (from 100 to 900) based on place value and properties of operations.
Indicator Insight	Use concrete materials, pictorial models, and strategies. Avoid teaching students to count the zeros. Provide experiences for discovering the "why." This place value understanding is foundational when multiplying larger numbers.
Assessment Specifications	
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • compute the product of a one-digit number times a multiple of 10 (from 10 to 90). • compute the product of a one-digit number times a multiple of 100 (from 100 to 900). • represent products using models.
Assessment Guidelines	SC READY items will focus on multiples of 10 (from 10 to 90) and multiples of 100 (from 100 to 900).
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Indicator	**4.PAFR.1.3** Decompose numbers by the value of each digit to multiply whole numbers up to four digits by a one-digit number and two 2-digit whole numbers.
Indicator Insight	Strategies include, but are not limited to, partial products, equations, open arrays, area models, and/or properties of the operations. Continue to use the Distributive Property as a strategy when multiplying and dividing. Provide experiences to see how these strategies connect to one another.
Assessment Specifications	
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • multiply two whole numbers by decomposing the value of each digit.
Assessment Guidelines	SC READY items will focus on multiplying up to a four-digit number by one digit number OR two 2-digit whole numbers.
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Indicator	**4.PAFR.1.4** Use a strategy to divide up to a four-digit dividend by a one-digit divisor, with and without remainders. Justify the calculation.
Indicator Insight	Strategies include, but are not limited to, partial quotients, repeated subtraction, open arrays, area models, and/or properties of operations. Continue to use the Distributive Property as a strategy when multiplying and dividing. Provide experiences to see how these strategies connect to one another. Use multiplication to check their answer. Provide opportunities to explore relationships between the dividend, divisor, and remainder. This may lead to the discovery of the divisibility rules. Teach divisibility rules (in context) as you teach division by single-digit divisors.
4.PAFR.1.4	**Assessment Specifications**
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • divide up to a four-digit number by a one-digit divisor. • determine the meaning of remainder in real-world context. • justify a division calculation.
Assessment Guidelines	Students are expected to be familiar with remainders. Students should be familiar with the terms remainder and partial quotient. Remainders may be expressed as 5 R3 or $5\frac{3}{8}$ when solving 43 ÷ 8.
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Standard 4.PAFR.2

Use multiple representations to reason and solve problems involving operational properties of fractions.

Math Vocabulary for Assessment: compute, decimal, denominator, difference, divide, hundredths, multiply, numerator, product, quotient, remainder, sum, tenth(s), and unit fraction.

Indicator	**4.PAFR.2.1** Use a strategy to accurately compute sums and differences of fractions with like denominators and justify the reasonableness of the answer. Limit denominators to 2, 3, 4, 5, 6, 8, 10, 12, 25, and 100.
Indicator Insight	Students are not required to rename fractions in lowest terms/simplest form. Pose problems both in context and without context. Representations should include concrete, area, linear models, and/or equations.
4.PAFR.2.1 Assessment Specifications	
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • compute sums of fractions with like denominators. • compute differences of fractions with like denominators. • justify the reasonableness of the sums or differences.
Assessment Guidelines	Students are expected to be familiar with solving problems with fractions less than one in all positions. SC READY items will focus on fractions with denominators of 2, 3, 4, 5, 6, 8, 10, 12, 25, and 100.
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Indicator	**4.PAFR.2.2** Use fraction and decimal equivalencies to add and subtract tenths and hundredths, to include mixed numbers and fractions greater than 1.
Indicator Insight	Refer to improper fractions as fractions greater than 1.
Assessment Specifications	
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • add tenths and hundredths in fraction and decimal form. • subtract tenths and hundredths in fraction and decimal form.
Assessment Guidelines	Students are expected to add or subtract fractions or decimals using equivalent forms of tenths and/or hundredths. Students are expected to be exposed to mixed numbers and fractions greater than one (improper fractions). Students are not expected to know the standard algorithm for decimal addition and subtraction.
DOK(s)	1, 2
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Indicator	**4.PAFR.2.3** Represent and compute the product of a whole number times a unit fraction. Limit denominators to 2, 3, 4, 5, 6, 8, 10, 12, 25, and 100.
Indicator Insight	Understand this as combining equal groups of the unit fraction. Representations should include concrete, area, linear models, and/or equations. Students can be exposed to real-world situations for application purposes.
Assessment Specifications	
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • represent the product of a whole number times a unit fraction using models. • compute the product of a whole number times a unit fraction.
Assessment Guidelines	SC READY items will focus on fractions with denominators of 2, 3, 4, 5, 6, 8, 10, 12, 25, and 100.
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Indicator	**4.PAFR.2.4** Interpret a fraction as an equal sharing division situation, where a quantity (the numerator) is divided into equal parts (the denominator) to include real-world situations.
Indicator Insight	Representations should include concrete, area, and/or linear models. Use partitive division to share fractional amounts evenly to visualize the relationship between fractions and division.
4.PAFR.2.4 Assessment Specifications	
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • recognize a model that represents a fraction showing shared division. • interpret a fraction in a real-world situation as an equal sharing division situation. • determine the fraction that represents a real-world equal sharing division situation.
Assessment Guidelines	Students are not expected to solve problems, only interpret.
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Standard 4.PAFR.3

Use reasoning to represent and solve algebraic and numerical situations.

Math Vocabulary for Assessment: composite, equation, expression, factor, function table, numerical pattern, prime, rule, and variable.

Indicator	**4.PAFR.3.1** Find all factor pairs for a whole number in the range 1–50. Determine whether the whole number is prime or composite.
Indicator Insight	Strategies should include the use of an organized process for finding all factors to avoid a factor being skipped. This strategy may include starting with 1 and proceeding in sequential order. Building arrays to determine if a number is a factor may be beneficial. Factor pairs may be organized in a t-chart.
Assessment Specifications	
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • determine if a whole number is prime or composite. • find all factor pairs for a whole number.
Assessment Guidelines	SC READY items will focus on finding factors pairs for numbers up to 50.
DOK(s)	1, 2
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Indicator	**4.PAFR.3.2** Describe and extend a numerical pattern that follows a rule using function tables and real-world situations.
Indicator Insight	Use function tables and input/output tables interchangeably. In middle school, students will need to know the term "function table." In addition, have students find the rule when given the input and output.
Assessment Specifications	
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • verbally describe a numerical pattern. • extend a numerical pattern that follows a rule.
Assessment Guidelines	Students are expected to be able to use all 4 operations with sequences. Students are not expected to write a rule from a pattern. SC READY items will focus on one-step rules.
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Indicator	**4.PAFR.3.3** Solve real-world situations involving multiplicative comparison situations and write equations to represent the problem using a variable for the unknown.
Indicator Insight	Problems should include unknown product, size of group unknown, and number of groups unknown. Model using concrete materials or bar diagrams.
Assessment Specifications	
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • solve real-world situations involving multiplicative comparison. • represent a situation involving multiplicative comparison using an equation with a variable for the unknown.
Assessment Guidelines	Students are expected to write an equation using a variable for the unknown. Expose students to multiple representations for an unknown- open box, question mark, symbol, or a letter.
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Indicator	**4.PAFR.3.4** Solve two-step, real-world situations using the four operations involving whole number answers. Represent the problem using an equation with a variable as the unknown in any position.
Indicator Insight	Provide context to include measurement situations with metric and customary units. Use a letter to represent the unknown.
4.PAFR.3.4	**Assessment Specifications**
Example Tasks *(This list is non-exhaustive.)*	The student will be able to • solve two-step, real-world situations with the four operations. • represent two-step, real-world situations with an equation with a variable representing the unknown.
Assessment Guidelines	Students are expected to be able to solve when the unknown variable is in any position in the equation. Students are not expected to solve problems relating to area in real-world situations. SC READY items will focus on whole number solutions.
DOK(s)	1, 2, 3
Item Types	Selected-Response Technology-Enhanced Technology-Enhanced Constructed-Response

Appendix: Student Reference Sheet

A reference sheet of appropriate conversions is provided to students in Grades 4-5 during testing. Below is the information provided to students in Grade 4.

SC READY Mathematics Reference Sheet

Grade 4

Conversions

Customary
1 foot = 12 inches 1 yard = 3 feet
1 cup = 8 fluid ounces 1 pint = 2 cups 1 quart = 2 pints 1 gallon = 4 quarts
1 pound = 16 ounces