Mathematics

Assessment Anchors and Eligible Content
Aligned to the Pennsylvania Core Standards

Grade 3

Pennsylvania System of School Assessment

The Assessment Anchors, as defined by the Eligible Content, are organized into cohesive blueprints, each structured with a common labeling system that can be read like an outline. This framework is organized first by Reporting Category, then by Assessment Anchor, followed by Anchor Descriptor, and then finally, at the greatest level of detail, by an Eligible Content statement. The common format of this outline is followed across the PSSA.

Here is a description of each level in the labeling system for the PSSA:

Reporting Category

The Assessment Anchors are organized into four classifications, as listed below.

- o   A = Numbers and Operations
- o   B = Algebraic Concepts
- o   C = Geometry
- o   D = Data Analysis and Probability

These four classifications are used throughout the grade levels. In addition to these classifications, there are five Reporting Categories for each grade level. The first letter of each Reporting Category represents the classification; the second letter represents the Domain as stated in the Pennsylvania Core Standards for Mathematics. Listed below are the Reporting Categories for Grade 3.

- o   A-T = Numbers and Operations in Base Ten
- o   A-F = Numbers and Operations—Fractions
- o   B-O = Operations and Algebraic Thinking
- o   C-G = Geometry
- o   D-M = Measurement and Data

The title of each Reporting Category is consistent with the title of the corresponding Domain in the Pennsylvania Core Standards for Mathematics. The Reporting Category title appears at the top of each page.

Assessment Anchor

The Assessment Anchor appears in the shaded bar across the top of each Assessment Anchor table. The Assessment Anchors represent categories of subject matter (skills and concepts) that anchor the content of the PSSA. Each Assessment Anchor is part of a Reporting Category and has one or more Anchor Descriptors unified under and aligned to it.

Anchor Descriptor

Below each Assessment Anchor is one or more specific Anchor Descriptors. The Anchor Descriptor adds a level of specificity to the content covered by the Assessment Anchor. Each Anchor Descriptor is part of an Assessment Anchor and has one or more Eligible Content statements unified under and aligned to it.

Eligible Content

The column to the right of the Anchor Descriptor contains the Eligible Content statements. The Eligible Content is the most specific description of the skills and concepts assessed on the PSSA. This level is considered the assessment limit and helps educators identify the range of the content covered on the PSSA. **Note:** All Grade 3 Eligible Content statements are considered Non-Calculator.

Reference

In the space below each Assessment Anchor table is a code representing one or more Pennsylvania Core Standards for Mathematics that correlate to the Eligible Content statements.

M03.A-T Numbers and Operations in Base Ten

Reporting Category

ASSESSMENT ANCHOR	
M03.A-T.1	**Use place-value understanding and properties of operations to perform multi-digit arithmetic.**

DESCRIPTOR		ELIGIBLE CONTENT	
M03.A-T.1.1	Apply place-value strategies to solve problems.	**M03.A-T.1.1.1**	Round two- and three-digit whole numbers to the nearest ten or hundred, respectively.
		M03.A-T.1.1.2	Add two- and three-digit whole numbers (limit sums from 100 through 1,000) and/or subtract two- and three-digit numbers from three-digit whole numbers.
		M03.A-T.1.1.3	Multiply one-digit whole numbers by two-digit multiples of 10 (from 10 through 90).
		M03.A-T.1.1.4	Order a set of whole numbers from least to greatest or greatest to least (up through 9,999, and limit sets to no more than four numbers).

Reference:

CC.2.1.3.B.1

Apply place-value understanding and properties of operations to perform multi-digit arithmetic.

M03.A-F Numbers and Operations—Fractions

Reporting Category

ASSESSMENT ANCHOR	
M03.A-F.1	**Develop an understanding of fractions as numbers.**

DESCRIPTOR		ELIGIBLE CONTENT	
M03.A-F.1.1	Develop and apply number theory concepts to compare quantities and magnitudes of fractions and whole numbers.	**M03.A-F.1.1.1**	Demonstrate that when a whole or set is partitioned into y equal parts, the fraction $1/y$ represents 1 part of the whole and/or the fraction x/y represents x equal parts of the whole (limit denominators to 2, 3, 4, 6, and 8; limit numerators to whole numbers less than the denominator; and no simplification necessary).
		M03.A-F.1.1.2	Represent fractions on a number line (limit denominators to 2, 3, 4, 6, and 8; limit numerators to whole numbers less than the denominator; and no simplification necessary).
		M03.A-F.1.1.3	Recognize and generate simple equivalent fractions (limit the denominators to 1, 2, 3, 4, 6, and 8 and limit numerators to whole numbers less than the denominator). *Example 1: 1/2 = 2/4* *Example 2: 4/6 = 2/3*
		M03.A-F.1.1.4	Express whole numbers as fractions, and/or generate fractions that are equivalent to whole numbers (limit denominators to 1, 2, 3, 4, 6, and 8). *Example 1: Express 3 in the form 3 = 3/1.* *Example 2: Recognize that 6/1 = 6.*
		M03.A-F.1.1.5	Compare two fractions with the same denominator (limit denominators to 1, 2, 3, 4, 6, and 8), using the symbols >, =, or <, and/or justify the conclusions.

Reference:

CC.2.1.3.C.1

Explore and develop an understanding of fractions as numbers.

M03.B-O Operations and Algebraic Thinking

ASSESSMENT ANCHOR	
M03.B-O.1	**Represent and solve problems involving multiplication and division.**

DESCRIPTOR		ELIGIBLE CONTENT	
M03.B-O.1.1	Understand various meanings of multiplication and division.	**M03.B-O.1.1.1**	Interpret and/or describe products of whole numbers (up to and including 10 × 10).
			Example 1: Interpret 35 as the total number of objects in 5 groups, each containing 7 objects.
			Example 2: Describe a context in which a total number of objects can be expressed as 5 × 7.
		M03.B-O.1.1.2	Interpret and/or describe whole-number quotients of whole numbers (limit dividends through 50 and limit divisors and quotients through 10).
			Example 1: Interpret 48 ÷ 8 as the number of objects in each share when 48 objects are partitioned equally into 8 shares, or as a number of shares when 48 objects are partitioned into equal shares of 8 objects each.
			Example 2: Describe a context in which a number of shares or a number of groups can be expressed as 48 ÷ 8.

Reference:

CC.2.2.3.A.1

Represent and solve problems involving multiplication and division.

M03.B-O Operations and Algebraic Thinking

ASSESSMENT ANCHOR	
M03.B-O.1	**Represent and solve problems involving multiplication and division.**

DESCRIPTOR	ELIGIBLE CONTENT
M03.B-O.1.2 Solve mathematical and real-world problems using multiplication and division, including determining the missing number in a multiplication and/or division equation.	**M03.B-O.1.2.1** Use multiplication (up to and including 10 × 10) and/or division (limit dividends through 50 and limit divisors and quotients through 10) to solve word problems in situations involving equal groups, arrays, and/or measurement quantities.
	M03.B-O.1.2.2 Determine the unknown whole number in a multiplication (up to and including 10 × 10) or division (limit dividends through 50 and limit divisors and quotients through 10) equation relating three whole numbers.
	Example: _Determine the unknown number that makes an equation true._

Reference:

CC.2.2.3.A.1

Represent and solve problems involving multiplication and division.

M03.B-O Operations and Algebraic Thinking

ASSESSMENT ANCHOR	
M03.B-O.2	**Understand properties of multiplication and the relationship between multiplication and division.**

DESCRIPTOR	ELIGIBLE CONTENT
M03.B-O.2.1 Use properties to simplify and solve multiplication problems.	**M03.B-O.2.1.1** Apply the commutative property of multiplication (not identification or definition of the property).
	M03.B-O.2.1.2 Apply the associative property of multiplication (not identification or definition of the property).

Reference:

CC.2.2.3.A.2

Understand properties of multiplication and the relationship between multiplication and division.

M03.B-O Operations and Algebraic Thinking

Reporting Category

ASSESSMENT ANCHOR	
M03.B-O.2	**Understand properties of multiplication and the relationship between multiplication and division.**

DESCRIPTOR		ELIGIBLE CONTENT	
M03.B-O.2.2	Relate division to a missing-number multiplication equation.	**M03.B-O.2.2.1**	Interpret and/or model division as a multiplication equation with an unknown factor.
			Example: Find 32 ÷ 8 by solving 8 × ? = 32.

Reference:

CC.2.2.3.A.2

Understand properties of multiplication and the relationship between multiplication and division.

M03.B-O Operations and Algebraic Thinking

ASSESSMENT ANCHOR	
M03.B-O.3	**Solve problems involving the four operations, and identify and explain patterns in arithmetic.**

DESCRIPTOR	ELIGIBLE CONTENT
M03.B-O.3.1 Use operations, patterns, and estimation strategies to solve problems (may include word problems).	**M03.B-O.3.1.1** Solve two-step word problems using the four operations (expressions are not explicitly stated). Limit to problems with whole numbers and having whole-number answers.
	M03.B-O.3.1.2 Represent two-step word problems using equations with a symbol standing for the unknown quantity. Limit to problems with whole numbers and having whole-number answers.
	M03.B-O.3.1.3 Assess the reasonableness of answers. Limit problems posed with whole numbers and having whole-number answers.
	M03.B-O.3.1.4 Solve two-step equations using order of operations (equation is explicitly stated with no grouping symbols).
	M03.B-O.3.1.5 Identify arithmetic patterns (including patterns in the addition table or multiplication table) and/or explain them using properties of operations. *Example 1:* Observe that 4 times a number is always even. *Example 2:* Explain why 6 times a number can be decomposed into three equal addends.
	M03.B-O.3.1.6 Create or match a story to a given combination of symbols (+, –, ×, ÷, <, >, and =) and numbers.
	M03.B-O.3.1.7 Identify the missing symbol (+, –, ×, ÷, <, >, and =) that makes a number sentence true.

Reference:

CC.2.2.3.A.4

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

M03.C-G Geometry | Reporting Category

ASSESSMENT ANCHOR	
M03.C-G.1	**Reason with shapes and their attributes.**

DESCRIPTOR		ELIGIBLE CONTENT	
M03.C-G.1.1	Analyze characteristics of polygons.	**M03.C-G.1.1.1**	Explain that shapes in different categories may share attributes and that the shared attributes can define a larger category. *Example 1: A rhombus and a rectangle are both quadrilaterals since they both have exactly four sides.* *Example 2: A triangle and a pentagon are both polygons since they are both multi-sided plane figures.*
		M03.C-G.1.1.2	Recognize rhombi, rectangles, and squares as examples of quadrilaterals and/or draw examples of quadrilaterals that do not belong to any of these subcategories.
		M03.C-G.1.1.3	Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *Example 1: Partition a shape into 4 parts with equal areas.* *Example 2: Describe the area of each of 8 equal parts as 1/8 of the area of the shape.*

Reference:

CC.2.3.3.A.1

Identify, compare, and classify shapes and their attributes.

CC.2.3.3.A.2

Use the understanding of fractions to partition shapes into parts with equal areas and express the area of each part as a unit fraction of the whole.

M03.D-M Measurement and Data

ASSESSMENT ANCHOR	
M03.D-M.1	**Solve problems involving measurement and estimation of intervals of time, money, liquid volumes, masses, and lengths of objects.**

DESCRIPTOR		ELIGIBLE CONTENT	
M03.D-M.1.1	Determine or calculate time and elapsed time.	**M03.D-M.1.1.1**	Tell, show, and/or write time (analog) to the nearest minute.
		M03.D-M.1.1.2	Calculate elapsed time to the minute in a given situation (total elapsed time limited to 60 minutes or less).

Reference:

CC.2.4.3.A.2

Tell and write time to the nearest minute and solve problems by calculating time intervals.

M03.D-M Measurement and Data

ASSESSMENT ANCHOR	
M03.D-M.1	**Solve problems involving measurement and estimation of intervals of time, money, liquid volumes, masses, and lengths of objects.**

DESCRIPTOR		ELIGIBLE CONTENT	
M03.D-M.1.2	Use the attributes of liquid volume, mass, and length of objects.	**M03.D-M.1.2.1**	Measure and estimate liquid volumes and masses of objects using standard units (cups [c], pints [pt], quarts [qt], gallons [gal], ounces [oz.], and pounds [lb]) and metric units (liters [l], grams [g], and kilograms [kg]).
		M03.D-M.1.2.2	Add, subtract, multiply, and divide to solve one-step word problems involving masses or liquid volumes that are given in the same units.
		M03.D-M.1.2.3	Use a ruler to measure lengths to the nearest quarter inch or centimeter.

Reference:

CC.2.4.3.A.1

Solve problems involving measurement and estimation of temperature, liquid volume, mass or length.

M03.D-M Measurement and Data   Reporting Category

ASSESSMENT ANCHOR	
M03.D-M.1	**Solve problems involving measurement and estimation of intervals of time, money, liquid volumes, masses, and lengths of objects.**

DESCRIPTOR		ELIGIBLE CONTENT	
M03.D-M.1.3	Count, compare, and make change using a collection of coins and one-dollar bills.	**M03.D-M.1.3.1**	Compare total values of combinations of coins (penny, nickel, dime, and quarter) and/or dollar bills less than $5.00.
		M03.D-M.1.3.2	Make change for an amount up to $5.00 with no more than $2.00 change given (penny, nickel, dime, quarter, and dollar).
		M03.D-M.1.3.3	Round amounts of money to the nearest dollar.

Reference:

CC.2.4.3.A.3

Solve problems and make change involving money using a combination of coins and bills.

M03.D-M Measurement and Data

ASSESSMENT ANCHOR	
M03.D-M.2	**Represent and interpret data.**

DESCRIPTOR	ELIGIBLE CONTENT
M03.D-M.2.1 Organize, display, and answer questions based on data.	**M03.D-M.2.1.1** Complete a scaled pictograph and a scaled bar graph to represent a data set with several categories (scales limited to 1, 2, 5, and 10).
	M03.D-M.2.1.2 Solve one- and two-step problems using information to interpret data presented in scaled pictographs and scaled bar graphs (scales limited to 1, 2, 5, and 10). *Example 1: (One-step) "Which category is the largest?"* *Example 2: (Two-step) "How many more are in category A than in category B?"*
	M03.D-M.2.1.3 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Display the data by making a line plot, where the horizontal scale is marked in appropriate units—whole numbers, halves, or quarters.
	M03.D-M.2.1.4 Translate information from one type of display to another. Limit to pictographs, tally charts, bar graphs, and tables. *Example: Convert a tally chart to a bar graph.*

Reference:

CC.2.4.3.A.4

Represent and interpret data using tally charts, tables, pictographs, line plots, and bar graphs.

M03.D-M Measurement and Data

ASSESSMENT ANCHOR	
M03.D-M.3	**Geometric measurement: understand concepts of area and relate area to multiplication and to addition.**

DESCRIPTOR		ELIGIBLE CONTENT	
M03.D-M.3.1	Find the areas of plane figures.	**M03.D-M.3.1.1**	Measure areas by counting unit squares (square cm, square m, square in., square ft, and non-standard square units).
		M03.D-M.3.1.2	Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real-world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.

Reference:

CC.2.4.3.A.5

Determine the area of a rectangle and apply the concept to multiplication and to addition.

ASSESSMENT ANCHOR	
M03.D-M.4	**Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.**

DESCRIPTOR		ELIGIBLE CONTENT	
M03.D-M.4.1	Find and use the perimeters of plane figures.	**M03.D-M.4.1.1**	Solve real-world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, exhibiting rectangles with the same perimeter and different areas, and exhibiting rectangles with the same area and different perimeters. Use the same units throughout the problem.

Reference:

CC.2.4.3.A.6

Solve problems involving perimeters of polygons and distinguish between linear and area measures.