

MATH - GRADE 3
Assessment Anchors & Eligible Content
Pennsylvania Department of Education
2007



M3.A Numbers and Operations

M3.A.1 Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers and number systems.

M3.A.1.1 Apply place-value concepts and numeration to counting, ordering, grouping and equivalency.

Reference: 2.1.3.C, 2.1.3.I, 2.11.3.A

M3.A.1.1.1 Match the word name with the appropriate whole number (up through 9,999).

M3.A.1.1.2 Differentiate between and/or give examples of even and odd number (limit to 3 digits).

M3.A.1.1.3 Compare two whole numbers using greater than ($>$), less than ($<$) or equal to ($=$) (up through 9,999).

M3.A.1.1.4 Order a set of whole numbers from least to greatest or greatest to least (up through 9,999; limit sets to no more than four numbers).

M3.A.1.1.5 Match a symbolic representation of numbers to appropriate whole numbers (e.g., base ten blocks, 7 hundreds, 4 tens and 8 ones, etc).

M3.A Numbers and Operations

M3.A.1 Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers and number systems.

M3.A.1.2 Use fractions to represent quantities as part of a whole or part of a set.

Reference: 2.1.3.D

M3.A.1.2.1 Write the fraction that corresponds to a drawing or part of a set (numerators 1-9, denominators 2-10. No equivalent or improper fractions or mixed numbers).

M3.A.1.2.2 Create a drawing or set that represents a given fraction (numerators 1-9, denominators 2-10. No equivalent or improper fractions or mixed numbers).



M3.A Numbers and Operations

M3.A.1 Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers and number systems.

M3.A.1.3 Count, compare and make change using a collection of coins and one-dollar bills.

Reference: 2.1.3.E

M3.A.1.3.1 Count a collection of bills and coins less than \$5.00 (penny, nickel, dime, quarter, dollar). Money may be represented as 15 cents, 15¢ or \$0.15.

M3.A.1.3.2 Compare total values of combinations of coins less than \$5.00 (penny, nickel, dime, quarter, dollar).

M3.A.1.3.3 Make change for an amount up to \$5.00 with no more than \$2.00 change given (penny, nickel, dime, quarter, dollar).



M3.A Numbers and Operations

M3.A.2 Understand the meanings of operations, use operations and understand how they relate to each other.

M3.A.2.1 Understand various meanings of operations and the relationship between them.

Reference: 2.1.3.K, 2.2.3.C, 2.5.3.C

M3.A.2.1.1 Represent multiplication as repeated addition.

M3.A.2.1.2 Demonstrate the inverse relationship between addition and subtraction using fact families and/or factors.

M3.A.2.1.3 Identify the correct operation(s) to solve a word problem (no more than 2 operations using +, - and/or X).



M3.A Numbers and Operations

M3.A.3 Compute accurately and fluently and make reasonable estimates.

M3.A.3.1 Solve problems using addition, subtraction and multiplication (straight computation and word problems).

Reference: 2.1.3.L, 2.2.3.B

M3.A.3.1.1 Solve single- and double-digit addition and subtraction problems with and without regrouping in vertical or horizontal form.

M3.A.3.1.2 Solve problems involving multiplication through the 9's tables through 9×5 .

M3.A.3.1.3 Solve triple digit addition and subtraction problems without regrouping in vertical or horizontal form.



M3.A Numbers and Operations

M3.A.3 Compute accurately and fluently and make reasonable estimates.

M3.A.3.2 Use estimation skills to arrive at conclusions.

Reference: 2.2.3.E

M3.A.3.2.1 Estimate sums and differences of quantities; round 2-digit numbers to the nearest 10, and 3 digit numbers to the nearest 100, before computing (limit to two numbers).



M3.B Measurement

M3.B.1 Demonstrate an understanding of measurable attributes of objects and figures, and the units, systems and processes of measurement.

M3.B.1.1 Determine or calculate time and elapsed time.

Reference: 2.3.3.C, 2.3.3.D

M3.B.1.1.1 Tell/show time (analog) to the minute.

M3.B.1.1.2 Find elapsed time to increments of 5 minutes (limited to 2 adjacent hours).

M3.B.1.1.3 Identify times of the day and night as AM and PM.



M3.B Measurement

M3.B.1 Demonstrate an understanding of measurable attributes of objects and figures, and the units, systems and processes of measurement.

M3.B.1.2 Use the attributes of length, area, volume and weight of objects.

***Reference: 2.3.3.A,
2.3.3.E***

M3.B.1.2.1 Select an appropriate unit for the attribute being measured.

M3.B.1.2.2 Compare and/or order objects according to length, area, or weight.



M3.B Measurement

M3.B.2 Apply appropriate techniques, tools and formulas to determine measurements.

M3.B.2.1

Determine the measurement of objects with non-standard and standard units.

***Reference: 2.3.3.B,
2.3.3.F***

M3.B.2.1.1

Use a ruler (provided) to measure to the nearest $\frac{1}{2}$ inch.



M3.B Measurement

M3.B.2 Apply appropriate techniques, tools and formulas to determine measurements.

M3.B.2.2 Estimate measurements of familiar objects.

Reference: 2.3.3.G

M3.B.2.2.1 Match the object with its approximate measurement (all measurements given must be of the same system, e.g., about how tall is a soda pop can? 5 inches, 5 feet, 5 yards, etc.).



M3.C Geometry

M3.C.1 Analyze characteristics and properties of two- and three-dimensional geometric shapes and demonstrate understanding of geometric relationships.

M3.C.1.1 Identify and/or describe two- and three-dimensional objects.

Reference: 2.9.3.A

M3.C.1.1.1 Name/identify/describe geometric shapes in two dimensions (circle, square, rectangle, triangle, pentagon, hexagon, octagon).

M3.C.1.1.2 Name/identify geometric shapes in three dimensions (sphere, cube, cylinder, cone, pyramid, rectangular prism).



M3.C Geometry

M3.C.2 Identify and/or apply concepts of transformations or symmetry.

M3.C.2.1 Apply the concepts of transformations and symmetry.

Reference: 2.9.3.E, 2.9.3.F, 2.9.3.H

M3.C.2.1.1 Identify/draw one line of symmetry in a two-dimensional figure.

M3.C.2.1.2 Identify symmetrical two-dimensional shapes.



M3.C Geometry

M3.C.3 Locate points or describe relationships using the coordinate plane.

Not assessed at Grade 3.



M3.D Algebraic Concepts

M3.D.1 Demonstrate an understanding of patterns, relations and functions.

M3.D.1.1

Recognize, describe, or extend a variety of patterns.

**Reference: 2.8.3.A,
2.11.3.D**

M3.D.1.1.1

Extend or find a missing element in a pattern of numbers or shapes (pattern must show 3 repetitions – if multiples are used, limit to 2, 3 or 5).

M3.D.1.1.2

Identify/describe the rule for a pattern shown (pattern must show 3 repetitions – if multiples are used, limit to 2, 3 or 5).



M3.D Algebraic Concepts

M3.D.2 Represent and/or analyze mathematical situations using numbers, symbols, words, tables and/or graphs.

M3.D.2.1 Create/model expressions, equations and inequalities to match a problem situation.

Reference: 2.8.3.D

M3.D.2.1.1 Create or match a story to a given combination of symbols (+, -, x, <, >, =) and numbers.

M3.D.2.1.2 Choose the number sentence that matches a given story (one operation, + or - only).



M3.D Algebraic Concepts

M3.D.2 Represent and/or analyze mathematical situations using numbers, symbols, words, tables and/or graphs.

M3.D.2.2 Determine the missing number or symbol in a number sentence.

**Reference: 2.8.3.B,
2.8.3.F**

M3.D.2.2.1 Find a missing number that makes a number sentence true (1-digit or 2-digit numbers up to 18 using +, - or \times through 9×5).

M3.D.2.2.2 Identify the missing symbol (+, -, =, <, >) that makes a number sentence true.



M3.D Algebraic Concepts

M3.D.3 Analyze change in various contexts.

Not assessed at Grade 3.



M3.D Algebraic Concepts

M3.D.4 Describe or use models to represent quantitative relationships.

Not assessed at Grade 3.



M3.E Data Analysis and Probability

M3.E.1 Formulate or answer questions that can be addressed with data and/or organize, display, interpret or analyze data.

M3.E.1.1 Answer questions based on data shown on tables, charts, and bar graphs.

***Reference: 2.6.3.B,
2.7.3.D, 2.11.3.B***

M3.E.1.1.1 Analyze data shown on tables, charts, or bar graphs using the concepts of largest, smallest, most often, least often and middle.

M3.E.1.1.2 Describe, interpret and/or answer questions based on data shown in tables, charts or bar graphs.



M3.E Data Analysis and Probability

M3.E.1 Formulate or answer questions that can be addressed with data and/or organize, display, interpret or analyze data.

M3.E.1.2 Organize or display data using tables, charts, bar graphs.

**Reference: 2.6.3.A,
2.7.3.C**

M3.E.1.2.1 Graph data or complete a graph given the data (grid is provided).

M3.E.1.2.2 Translate information from one type of display to another (e.g., convert tally chart to bar graph). Limit to tally charts, bar graphs and tables.



M3.E Data Analysis and Probability

M3.E.2 Select and/or use appropriate statistical methods to analyze data.

Not assessed at Grade 3.



M3.E Data Analysis and Probability

M3.E.3 Understand and/or apply basic concepts of probability or outcomes.

Not assessed at Grade 3.



M3.E Data Analysis and Probability

M3.E.4 Develop and/or evaluate inferences and predictions or draw conclusions based on data or data displays.

Not assessed at Grade 3.

