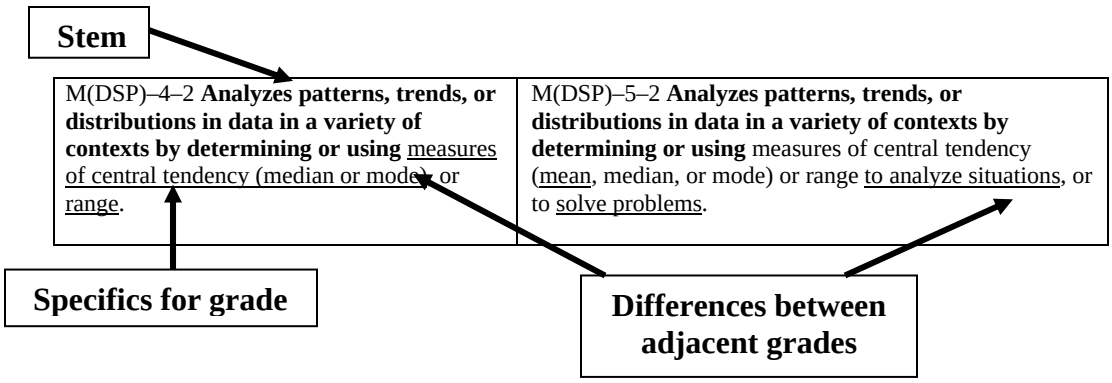
NECAP Mathematics Grade-Level Expectations For Grade 3

The New England Common Assessment Program (NECAP) Mathematics GLEs have been developed as a means to identify the concepts and skills expected of all students for large-scale assessment of mathematics in grades 3–8; they are not intended to represent the full mathematics curriculum at each grade level, but are meant to capture concepts and skills related to "big ideas" of mathematics that can be assessed in an on-demand setting that focus the curriculum, but do not narrow the curriculum. Each partner state intends to develop a set of local GLEs to accompany these GLEs for local assessment purposes that includes the concepts and skills not easily assessable in an on-demand setting, and therefore not included in this set of GLEs.

The NECAP GLEs in this document can be interpreted as describing grade-level expectations for the end of the grade identified, or in the beginning of the next grade.

As you review the NECAP Mathematics Grade-Level Expectations the following are important to understand.

1) The NECAP GLEs are organized into four content strands: Number and Operations; Functions and Algebra; Data, Statistics, and Probability; and Geometry and Measurement.
2) Problem solving, reasoning, connections, and communication are embedded throughout this set of GLEs instead of as separate strands.
3) Each GLE includes a **bolded** statement called the "stem." Each "stem" is the same or similar across the grades for a given GLE, and is meant to communicate the main curriculum and instructional focus of the GLE across the grades.
4) The unbolded text within a GLE indicates how the GLE is specified at a given grade level.
5) At each grade level differences from previous grades are underlined. (Note: Sometimes nothing is underlined within a GLE. In these situations examine other GLEs across the strand to identify the differences.)
6) Each GLE is coded for the content strand, grade level, and the GLE "stem" number (e.g., M(F&A)–6–3: The "M" stands for mathematics, the "F&A" stands for the functions and algebra strand, the "6" stands for grade 6, and the "3" stands for stem 3).
7) An empty cell means that the GLE "stem" will not be assessed at that grade on the state-level on-demand assessment, but is reserved for local curriculum and assessment.
8) Unless otherwise specified the number parameters for a given grade in M(N&O)–X–1 apply to all GLEs at that grade level.
9) Only number concepts identified at a grade level in the NECAP Numbers and Operations strand will be assessed and reported. However, all number concepts acquired up to a grade can be used in other content strands unless otherwise specified.
10) All the concepts and skills identified at a given grade level are "fair game" for assessment purposes. However, conjunctions in this document have specific meaning. The conjunction "and" separates parts of a GLE that will be assessed every year (to the extent possible), while the conjunction "or" separates parts of the GLE that may be assessed each year, but will be more likely to be assessed over several years. In some situations "or[sc]" is used. While students will have choices on strategies they use or methods to communicate their thinking throughout the assessment, there are special cases that the New England partners thought it was necessary to communicate to the test developer that students should not be required to use a specific method (e.g., "…writes in words or[sc] symbols…").



NECAP Mathematics Grade-Level Expectations For Grade 3

Number and Operations

Grade 3

M(N&O)–3–1 **Demonstrates conceptual understanding of rational numbers with respect to:**
whole numbers from 0 to 999 through equivalency, composition, decomposition, or place value **using models, explanations, or other representations**; and

positive fractional numbers (benchmark fractions: *a*/2, *a*/3, *a*/4, *a*/6, or *a*/8, where *a* is a whole number greater than 0 and less than or equal to the denominator) as a part to whole relationship in area and set models where the number of parts in the whole is equal to the denominator; and **decimals** (within a context of money) as a part of 100 **using models, explanations, or other representations**.

M(N&O)–3–2 **Demonstrates understanding of the relative magnitude of numbers** from 0 to 999 by ordering whole numbers; by comparing whole numbers to benchmark whole numbers (100, 250, 500, or 750); or by comparing whole numbers to each other; and comparing or identifying equivalent positive fractional numbers (*a*/2, *a*/3, *a*/4 where *a* is a whole number greater than 0 and less than or equal to the denominator) using models, number lines, or explanations.

M(N&O)–3–3 **Demonstrates conceptual understanding of mathematical operations** by describing or illustrating the inverse relationship between addition and subtraction of whole numbers; and the relationship between repeated addition and multiplication using models, number lines, or explanations.

M(N&O)–3–4 **Accurately solves problems involving** addition and subtraction with and without regrouping; the concept of multiplication; and addition or subtraction of decimals (in the context of money).

Geometry and Measurement

M(G&M)–3–1 **Uses properties or attributes of angles** (number of angles) **or sides** (number of sides or length of sides) or composition or decomposition of shapes **to identify, describe, or distinguish among** triangles, squares, rectangles, rhombi, trapezoids, hexagons, or circles.

M(G&M)–3–6 **Demonstrates conceptual understanding of perimeter of** polygons, and **the area of** rectangles on grids using a variety of models or manipulatives. Expresses all measures using appropriate units.

M(G&M)–3–7 **Measures and uses units of measures appropriately and consistently, and makes conversions within systems when solving problems** across the content strands.

Benchmarks in Appendix B.

Functions and Algebra

M(F&A)–3–1 **Identifies and extends to specific cases a variety of patterns** (linear and non-numeric) represented in models, tables, or sequences by extending the pattern to the next one, two, or three elements, or finding missing elements.

M(F&A)–3–4 **Demonstrates conceptual understanding of equality** by showing equivalence between two expressions using models or different representations of the expressions; or by finding the value that will make an open sentence true (e.g., $2 + \square = 7$). (limited to one operation and limited to use addition, subtraction, or multiplication)

Data, Statistics, and Probability

M(DSP)–3–1 **Interprets a given representation** (line plots, tally charts, tables, or bar graphs) to answer questions related to the data, to analyze the data to formulate conclusions, or to make predictions.

(IMPORTANT: *Analyzes data consistent with concepts and skills in M(DSP)–3–2.*)

M(DSP)–3–2 **Analyzes patterns, trends, or distributions in data in a variety of contexts by determining or using** most frequent (mode), least frequent, largest, or smallest.

M(DSP)–3–3 **Identifies or describes representations or elements of representations that best display a given set of data or situation**, consistent with the representations required in M(DSP)–3–1.

M(DSP)–3–5 **For a probability event in which the sample space may or may not contain equally likely outcomes, determines** the likelihood of the occurrence of an event (using “more likely”, “less likely”, or “equally likely”).

Appendix B: Measurement Benchmarks

The following is a list of the measurement benchmarks and equivalences that ***can be used*** in problems across the content strands at each grade level to address the expectations in M(G&M)–X–7 for the NECAP Assessment.

M(G&M)–X–7 **Uses units of measures appropriately and consistently, and makes conversions within systems when solving problems** across the content strands.

The type of measure (e.g., length, time, etc.), the unit (e.g., inches, feet, etc.), the degree of accuracy where appropriate (e.g., ½ inch); and equivalences (e.g., 12 inches in a foot) are identified for grades 2 – 8. In addition to measurement benchmarks identified below students will be expected to use the appropriate units when solving problems involving area, volume, surface area, conversions, and rates (e.g., miles per hour, price per pound, pounds per square inch) on the NECAP Assessment.

Measures	**Grade 3**
Length	**Unit (accuracy):** Inch (to 1/2 inch); Foot (to whole inch); Centimeter (to whole centimeter); Meter (to whole centimeter) **Equivalencies:** 12 inches in 1 foot; 100 centimeters in 1 meter
Time	**Unit (accuracy):** Hour (to 5 minute interval); Day; Year **Equivalencies:** 24 hours in 1 day; 7 days in 1 week; 365 days in 1 year
Temperature	**Unit (accuracy):** Cº and Fº (to 1 degree)
Capacity	**Units (accuracy):** Quart (to whole quart)
Mass	**Unit (accuracy):** Kilogram (to whole kilogram); Gram (to whole gram)
Weight	**Unit (accuracy):** Pound (to whole pound)