

Measures of Academic Progress (MAP) New York State-Aligned Version 4

The NWEA Goal Structure is a document that represents the content and structure of a state’s standards documents. Goal structures are created through an alignment process that links state standards documents to the NWEA item bank. The MAP tests and associated reports for teachers and students are based upon this structure and alignment.

The alignment process begins with a thorough review of a state’s standards documents by NWEA’s curriculum specialists. The general goal areas or strands within a state’s standards that appear across grade levels become the goals in the goal structure (indicated below as bold). Areas in a state’s standards documents that are determined to be sub-domains of the goals/strands become the sub-goals in the goal structure (indented under each goal below).

Goal and sub-goal names from the Goal Structure are shortened for technical reasons to create the headings in DesCartes. Report Names are shortened further to accommodate report specifications.

Mathematics 2-5 Goal Structure	Mathematics 2-5 DesCartes	Mathematics 2-5 Report Names
Number Sense and Operations	Number Sense and Operations	Number Sense and Operations
Understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems: Count; skip count; count backwards; use ordinal terms; read, write, compare, and order whole numbers, fractions and decimals; understand place value structure; compose and decompose numbers; use the commutative and associative properties, identity element for addition, zero property and identity element for multiplication; create equivalent fractions; express ratios and percents in different forms.	Number Systems	
Identify odd and even numbers; Recognize prime and composite numbers; calculate multiples and least common multiples; identify factors; find common factors and greatest common factors.	Number Theory	

Understand meanings of operations and procedures: Select appropriate computational and operational methods; use multiplication and division as inverse operations; interpret meaning of remainders; simplify fractions; convert improper fractions and mixed numbers; add and subtract fractions with common denominators and mixed numbers with like denominators; express decimals as fractions; add, subtract, multiply, and divide decimals; use order of operations; make reasonable estimates; round numbers.	Operations and Estimation	
Algebra	Algebra	Algebra
Represent and analyze algebraically a wide variety of problem solving situations: Perform algebraic procedures; evaluate and express relationships using open sentences; use appropriate terminology when referring to constants, variables, and algebraic expressions; translate verbal expressions into algebraic expressions; substitute and evaluate expressions; use the symbols to compare whole numbers, unit fractions and decimals; solve one-step equations; evaluate the perimeter formula.	Variables, Expressions, Equations and Inequalities	
Recognize, use, and represent algebraically patterns, relations, and functions: Describe, extend, and make generalizations about numeric and geometric patterns; analyze a pattern or a whole-number function and state the rule, given a table or an input/output box.	Patterns, Relations, and Functions	
Geometry	Geometry	Geometry
Use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes: Recognize, name, describe, create, sort, and compare two and three-dimensional shapes; identify and name polygons, points and line segments; define and identify vertices, faces, and edges; compose and decompose two-dimensional shapes; find perimeter of polygons; find the area of a rectangle by counting the number of squares.	Shapes	

<p>Identify and justify geometric relationships: Sort groups of objects; identify intersecting, perpendicular, and parallel lines; identify rays; classify angles as acute, obtuse, right, and straight; know the sum of the interior angles of a quadrilateral; know the sum of the interior angles of a triangle; find a missing angle of a triangle; identify congruent and similar figures; identify corresponding parts of congruent triangles; identify the ratio of corresponding sides of similar triangles.</p>	<p>Geometric Relationships</p>	
<p>Apply transformations, symmetry, and coordinate geometry to analyze problem solving situations: Identify symmetry in two-dimensional shapes; construct lines of symmetry; predict the outcome of slides, flips, and turns of two-dimensional shapes; use ideas such as over, under, above, below, on, beside, next to, and between; recognize geometric shapes and structures in the environment; identify and plot points in the first quadrant; plot points to form basic geometric shapes.</p>	<p>Transformational and Coordinate Geometry</p>	
<p>Measurement</p>	<p>Measurement</p>	<p>Measurement</p>
<p>Determine what can be measured and how, using appropriate methods and formulas; use units to give meaning to measurements: Measure to the nearest inch, 1/2, 1/4, and 1/8 inch, centimeter, cups, pints, quarts, gallons, milliliters, liters, grams, ounces and pounds; compare and order lengths; compare capacities; convert within a system; recognize coins, bills, cent and dollar notation; make change; tell time; calculate elapsed time; know days of the week and months of the year; measure angles; estimate measurements.</p>	<p>Units of Measurement, Tools, Methods, & Estimation</p>	

Statistics and Probability	Statistics and Probability	Statistics and Probability
<p>Collect and record data related to a question: Represent data using tables, bar graphs, and pictographs; construct a frequency table; display data in a line graph; use Venn diagrams to sort and describe data; compare and interpret data in terms of describing quantity; read and interpret data in bar graphs, pictographs, and line graphs; calculate the mean and use it to describe a set of data; formulate conclusions and make predictions from graphs.</p>	<p>Collect, Organize, Display, and Analyze Data</p>	
<p>Understand and apply concepts of probability: List the possible outcomes for a single-event experiment; record experiment results using fractions/ratios; create a sample space and determine the probability of a single event, given a simple experiment.</p>	<p>Probability</p>	

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Mathematics 6+ Goal Structure	Mathematics 6+ DesCartes	Mathematics 6+ Report Names
Number Sense and Operations	Number Sense and Operations	Number Sense and Operations
Understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems: Read and write whole numbers to trillions; understand the concept of rate; solve proportions; read, write, and identify percents; solve percent problems; determine absolute value; place rational and irrational numbers on a number line; develop the laws of exponents; write numbers in scientific notation; identify and apply the properties of real numbers.	Number Systems	
Find the common factors and greatest common factor of two or more numbers: Determine multiples and least common multiple of two or more numbers; determine the prime factorization of a given number and write in exponential form.	Number Theory	
Understand meanings of operations and procedures: Make reasonable estimates; add, subtract, multiply, and divide fractions, mixed numbers, and complex numbers; find multiple representations of rational numbers; evaluate expressions involving factorial(s), absolute value(s), radical terms, and exponential expression(s) with negative and/or fractional exponents; solve problems that involve fractions, decimals, percents, and proportionality; use scientific notation to compute; apply sigma notation.	Operations and Estimation	

Algebra	Algebra	Algebra
<p>Represent and analyze algebraically a variety of problem solving situations: Translate a verbal phrase into an algebraic expression or inequality; describe a situation that matches a graph; use substitution; add, subtract, and multiply monomials and polynomials; divide monomials and a polynomial by a monomial or binomial; factor algebraic expressions; simplify expressions involving negative, fractional exponents; perform operations and simplify rational expressions; apply the properties of logarithms.</p>	<p>Variables and Expressions</p>	
<p>Write algebraic equations or inequalities that represent a situation: Analyze and solve problems whose solution requires solving a system of linear equations, systems of equations involving one linear equation and one quadratic equation, quadratic, literal, exponential, logarithmic, polynomial, and radical equations, linear, absolute value and rational equations and inequalities; use the discriminant to determine the nature of the roots of a quadratic equation.</p>	<p>Equations and Inequalities</p>	
<p>Recognize, use, and represent algebraically patterns, relations, and functions: Identify arithmetic or geometric sequences; represent the sum of a series; determine domain, range, composition, inverses, and perform transformations of functions; use set-builder and interval notation; determine the slope and write the equation of a line; determine the length of an arc; solve trigonometric equations; determine amplitude, period, frequency, and phase shift of a periodic function; use the Law of Sines or Cosines.</p>	<p>Patterns, Functions, & Coordinate Geometry</p>	

Geometry	Geometry	Geometry
<p>Use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes: Calculate the length of sides of similar triangles; find the area and perimeter of polygons and of figures composed of polygons and circles; calculate the volume and surface area of prisms and cylinders; identify radius, diameter, chords and central angles; calculate radius or diameter given circumference or area; identify the faces and bases of three-dimensional shapes.</p>	<p>Shapes</p>	
<p>Identify and justify geometric relationships, formally and informally: Apply theorems about polygons, circles, parallelograms, trapezoids, similar triangles, the Pythagorean and the triangle inequality theorem; calculate missing angle measurements when given parallel or intersecting lines; apply the properties of a regular pyramid, cylinder, right circular cone, and a sphere; identify the inverse, converse, and contrapositive of a conditional statement; determine the congruence of two triangles.</p>	<p>Geometric Relationships, Formal and Informal Proof</p>	
<p>Apply transformations, symmetry, and coordinate geometry to analyze problem solving situations: Identify and graph linear, quadratic, absolute value, and exponential functions; calculate area on a coordinate plane; determine slope, y-intercept and explain meaning; generalize how changing the coefficients of a function affects its graph; solve systems of equations and linear inequalities graphically; find midpoint and length; construct bisector of an angle, and perpendicular bisector of a segment.</p>	<p>Transformational & Coordinate Geometry</p>	

Measurement	Measurement	Measurement
Determine what can be measured, using appropriate methods and formulas: Measure with an appropriate level of precision; identify customary and metric units of capacity and mass; identify equivalent units of capacity; solve problems involving conversions within measurement systems; calculate distance using a map scale; calculate and compare unit prices; calculate rates; convert between radian and degree measures; develop strategies for estimating measurements.	Units of Measurement, Tools, Methods, & Estimation	
Statistics and Probability	Statistics and Probability	Statistics and Probability
Identify and collect data using a variety of methods: Determine factors which may affect the outcome of a survey; construct frequency tables, Venn diagrams, circle graphs, histograms, double bar graphs, double line graphs, box-and-whisker plots, scatter plots, and line of best fit; determine whether data is qualitative, quantitative, univariate or bivariate; determine when collected data or display of data may be biased; calculate measures of dispersion; apply the characteristics of the normal distribution.	Collection, Organization, and Display of Data	
Make predictions that are based upon data analysis: Determine and recognize how linear transformations affect mean, median, mode, and range; select appropriate measure of central tendency; read, analyze and interpret graphs, a frequency distribution table, histogram, or a box-and-whisker plot; identify the relationship between variables from a scatter plot; understand difference between correlation and causation; identify misleading statistics, graphs, and sources of bias; determine most appropriate regression model.	Analysis and Prediction of Data	

<p>Understand and apply concepts of probability: Determine the number of possible outcomes for a compound event and use this to determine probabilities of events; calculate the probability of an event and its complement; determine empirical probabilities; determine the validity of sampling methods; calculate permutations and combinations; apply the binomial formula; use the normal distribution as an approximation for binomial probabilities.</p>	Probability	
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Reading Goal Structure	Reading DesCartes	Reading Report Names
Students will read for information and understanding	Read for Information and Understanding	Information and Understanding
Collect and interpret data, facts and ideas; follow directions and procedures to solve problems and accomplish tasks	Interpret Data, Facts, Ideas; Follow Directions	
Collect and interpret data, facts and ideas; follow directions and procedures to solve problems and accomplish tasks	Make Predictions, Draw Conclusions, Inferences	
Identify main ideas and supporting details; distinguish relevant, irrelevant, missing, conflicting, or unclear information; distinguish fact and opinion and verifiable statement from hypothesis	Identify Main Idea, Support, Fact, and Opinion	
Use table of contents, indexes, glossaries, specialized reference sources, maps, graphs, charts and other visuals to locate information; use text features and organizational formats to understand and interpret texts; recognize defining features and structures of informational texts	Use Text Features, References, Organization	
Students will read for literary response and expression	Read for Literary Response and Expression	Literary Response
Interpret literary texts; summarize main ideas and supporting details	Interpret Text; Summarize Main Idea/Detail	
Recognize characteristics of genres; make predictions, draw conclusions, and make inferences	Recognize Genres; Predict, Infer, Conclude	
Identify literary elements and author's point of view	Identify Literary Elements, Theme, Point of View	
Recognize and use literary devices and techniques	Recognize Tone, Literary Devices and Techniques	
Students will read for critical analysis and evaluation	Read for Critical Analysis and Evaluation	Analysis and Evaluation
Evaluate content by identifying author's purpose, perspective, and intended audience	Evaluate Author's Purpose, Perspective, Audience	

Evaluate events, actions, characters, plot, and setting in literary works	Evaluate Events, Plot, Character, Setting	
Evaluate the validity and accuracy of ideas, opinions, and themes; form opinions, and make judgments	Evaluate Validity; Form Opinions; Make Judgments	
Students will demonstrate reading competencies common to all four ELA standards	Demonstrate Competencies Common to All Standards	Common Reading Competencies
Develop vocabulary and use background knowledge	Develop Vocabulary and Use Background Knowledge	
Develop vocabulary (prefixes, suffixes, roots)	Develop Vocabulary (Prefixes, Suffixes, Roots)	
Decode using phonics and structural analysis	Decode Using Phonics and Structural Analysis	
Use phonemic and print awareness	Use Phonemic and Print Awareness	

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Language Usage Goal Structure	Language Usage DesCartes	Language Usage Report Names
Students will write for information and understanding	Write for Information and Understanding	Information and Understanding
Use several sources of information; use both primary and secondary sources; cite sources in footnotes and bibliography; understand and consequences of plagiarism	Use and Cite Information; Understand Plagiarism	
Identify appropriate format for sharing information with intended audience and comply with the accepted features of that format	Identify Appropriate Format for Audience	
State a main idea and support it with details and examples; include relevant and exclude irrelevant information	Main Idea: Support with Relevant Information	
Students will write for literary response and expression	Write for Literary Response and Expression	Literary Texts and Expression
Write original literary texts [imaginative, narrative, poetry]	Write a Variety of Literary Texts	
Use literary elements, devices, and descriptive language to write original literary texts	Use Literary Elements, Devices, Language	
Students will write for critical analysis and evaluation	Write for Critical Analysis and Evaluation	Analysis and Evaluation
Write to analyze, evaluate themes and ideas, and to persuade	Analyze, Evaluate, Persuade	
Choose appropriate strategies for audience, purpose, and content	Choose Strategies: Audience, Purpose, Content	
Students will demonstrate competencies that cross all standards: writing process, sentences, paragraphs	Use Common Competencies: Writing Process	Writing Process
Develop and organize ideas; use sentences and paragraphs appropriate to organizational format	Use Appropriate Organizational Format	
Use the writing process	Use the Writing Process	

Students will demonstrate competencies that cross all standards: grammar	Use Common Competencies: Grammar	Grammar Competencies
Use correct construction: sentences and verb forms	Use Correct Construction: Sentences, Verb Forms	
Use correct construction: parts of speech	Use Correct Construction: Parts of Speech	
Students will demonstrate competencies that cross all standards: capitalization, punctuation, spelling	Use Capitalization, Punctuation, Spelling	Punctuate/Spell Capitalize
Observe the rules of spelling	Observe Rules of Spelling	
Observe the rules of capitalization	Observe Rules of Capitalization	
Observe the rules of punctuation	Observe Rules of Punctuation	