

# Measures of Academic Progress (MAP) North Carolina 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.

<b>Mathematics 2-5 Goal Structure</b>	<b>Mathematics 2-5 DesCartes</b>	<b>Mathematics 2-5 Report Names</b>
<b>Number and Operations</b>	<b>Number and Operations</b>	<b>Number and Operations</b>
Understand the value of whole numbers, fractions and decimal representations: Understand counting; compare whole numbers with symbols and words; compare sets of two to six numbers, arranging them from least to greatest or greatest to least; illustrate whole numbers in groups of ones, tens, hundreds and thousands by composing and decomposing flexible groups; represent whole numbers using models, words, numbers and expanded form; represent decimals using models, words and numbers; illustrate the place value structure of decimals and whole numbers; compare fractions; represent the relationship among fractions and decimals.*	Whole Numbers, Fractions, Decimal Representations	

<p>Use strategies to solve problems involving whole numbers: Use strategies to develop fluency in addition and subtraction to solve multi-step problems; use estimation to justify the reasonableness of solutions; illustrate the meaning of multiplication and division using multiple models; use strategies to develop fluency for multiplication; use strategies with division with and without remainders to develop fluency; use the concept of division to solve problems with remainders; use concepts such as factors, multiples, prime and composite numbers.</p>	<p>Problems Involving Whole Numbers</p>	
<p>Use strategies to solve problems involving fractions and decimals: Illustrate equal parts with situations involving numbers less than one and mixed numbers greater than one; represent equivalent fractions with models; represent fractions or mixed numbers using symbolic notation; use estimation to justify the reasonableness of solutions; use a variety of strategies to solve problems involving fractions and decimals; represent two quantities that vary by the same factor.</p>	<p>Problems Involving Fractions and Decimals</p>	
<p><b>Algebra</b></p>	<p><b>Algebra</b></p>	<p><b>Algebra</b></p>
<p>Apply the concept of equality and inequality: Use mathematical properties to solve problems; represent situations as algebraic equations; use combinations of addition, subtraction, multiplication and division to solve one- and two- step equations; represent problem situations with inequalities; identify values of a variable as a solution for an inequality; use order of operations.</p>	<p>Concept of Equality and Inequality</p>	
<p>Analyze patterns to solve problems: Use repeating patterns to make predictions and extend simple repeating patterns; predict missing terms in patterns; Use numbers, pictures, tables, graphs and algebraic expressions to represent numeric and non-numeric patterns to solve problems; use rules to describe numeric and non-numeric growing patterns.</p>	<p>Analyze Patterns to Solve Problems</p>	

<b>Geometry</b>	<b>Geometry</b>	<b>Geometry</b>
<p>Classify figures according to their properties: Classify two-dimensional figures according to their properties to develop definitions of classes of shapes; classify triangles and quadrilaterals based on angles, sides, diagonals and shape (convex and concave quadrilaterals); classify three-dimensional figures according to their properties to develop definitions of classes of shapes; recognize faces of polyhedra as polygons; classify angles as greater than, equal to or less than a right angle; use triangles to categorize polygons by the sums of the measures of interior angles.</p>	<p>Classify Figures According to Their Properties</p>	
<p>Use spatial reasoning to solve problems: Compare different perspectives and orientations by composing and decomposing geometric figures; understand congruence in polygons with different orientations; understand the concept of symmetry; understand the concepts of transformations including reflections, translations and rotations; represent points with whole number and letter coordinates on a rectangular coordinate grid; represent geometric figures with vertices at points on a coordinate grid; compare the area of a two-dimensional net to the surface area of its three-dimensional rectangular prism.</p>	<p>Use Spatial Reasoning to Solve Problems</p>	
<b>Measurement</b>	<b>Measurement</b>	<b>Measurement</b>
<p>Use units to solve problems: Compare objects with respect to their lengths, weights or capacities using non-standard units; apply the processes of measurement to capacity and length; select the most appropriate metric unit and tool to measure selected attributes; use estimation to interpret the reasonableness of length, weight, capacity and temperature measurements; understand the procedure for measuring angles with a protractor; use angle benchmarks to estimate and solve problems.</p>	<p>Use Units to Solve Problems</p>	

Understand area and perimeter of polygons: Use rectangles and composite shapes to find area; understand the concept and how to determine the perimeter of composite figures; understand the relationship between area and perimeter of composite figures.	Area and Perimeter of Polygons	
Use measurement of temperature and time to solve problems and strategies to count money collections: Remember in order the names of the days of the week and months of the year; recognize the difference in the amount of time between a day, week and month; use analog and digital clocks to tell time; use various phrases to read time; understand elapsed time to solve problems; understand negative and non-negative temperatures on a thermometer to solve problems; use multiple strategies to count collections of coins; use the symbols \$ and ¢ properly.	Temperature, Time, and Money	
<b>Statistics and Probability</b>	<b>Statistics and Probability</b>	<b>Statistics and Probability</b>
Interpret data from statistical investigations: Represent data collected using line plots, lists and tallies; analyze what the data show in Venn diagrams and line plots; represent tables and bar graphs; interpret the data presented in circle graphs; represent collected data in line graphs; interpret one or two sets of data in terms of shape, center, and range of the data set; use data from statistical investigations presented in graphs to interpret trends; interpret appropriateness for specific questions by comparing multiple representations of one or more sets of data.	Interpret Data from Statistical Investigations	
Predict the outcomes of simple probability experiments: Understand the events of probability as being certain, likely, equally likely, unlikely, possible or impossible; represent the possible outcomes of simple probability experiments; represent probability and relative likelihood of events.	Simple Probability Experiments	

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Mathematics 6+ Goal Structure	Mathematics 6+ DesCartes	Mathematics 6+ Report Names
Number and Operations	Number and Operations	Number and Operations
Problems with rational numbers: Use formal algorithms for all four operations for all rational numbers; use addition, subtraction, multiplication, and division of integers to solve problems; use addition, subtraction and scalar multiplication of matrices; use the properties of matrices to solve problems in context.	Problems with Rational Numbers	
Apply an understanding of percent, ratios, and rates to solve problems: Use concepts of percent and percent of change to solve problems; use unit rates to solve problems; use proportional reasoning to find missing values for part-to-part ratio and part-to-whole ratio problems; use proportions to solve problems; use given conversion factors to convert measures given in either customary or metric units to the other system; use sampling strategies to collect data about unknown populations.	Percent, Ratio, and Rate problems	
The structure of the Real number system: Compare Real numbers; represent percents as decimals and fractions; fractions as decimals and percents; and decimals as fractions and percents; represent absolute value; classify Real numbers as natural, whole, integer, rational or irrational; represent numbers using scientific notation; represent numbers as prime factors with exponents; represent numerical expressions and algebraic expressions with exponents in their simplest forms; use strategies to compute square roots and cube roots of numbers that are not perfect squares or perfect cubes.	Structure of the Real Number System	

Algebra	Algebra	Algebra
<p>Apply mathematical operations and properties to solve inequalities and equations, and to simplify rational expressions: Use verbal descriptions and algebraic equations and inequalities to represent problem situations; use mathematical operations and properties to solve equations; use appropriate properties to solve exponential and logarithmic equations; solve quadratic equations; use mathematical operations and properties to solve inequalities; use graphs to find solutions to a linear inequality; use appropriate strategies to solve systems of equations or inequalities; use matrices to solve systems of linear equations; use properties to combine algebraic expressions; analyze quadratic expressions to determine their factors.</p>	<p>Inequalities, Equations, and Expressions</p>	
<p>Analyze patterns to determine the rule that enables accurate predictions: Analyze patterns of arithmetic sequences to determine the rule that defines the pattern; use the rule to predict the nth term of an arithmetic sequence; use a given rule to determine the pattern.</p>	<p>Analyze Patterns</p>	
<p>Analyze patterns of change in functional relationships: Interpret the meaning of the rate of change, x-intercepts and y-intercepts; represent slope given a table, graph, linear equation or two points; compare the slopes of two linear relationships; interpret the rate of change in tables to identify linear and non-linear relationships; identify intervals of increase or decrease; translate a linear relationship between its verbal, tabular, graphic and algebraic forms.</p>	<p>Analyze Patterns of Change in Function</p>	

<p>Represent functions as mathematical models : Categorize relations as functions or "not functions"; find the sum, difference, product and quotient of two or more functions; find the inverse of a function; convert between exponential and logarithmic form; use logarithmic properties to simplify logarithms; represent transformations of functions in a coordinate plane; determine the domain, range, zeros, extremes, intercepts, and end behavior; identify intervals for which the function is increasing and/or decreasing; represent periodic functions using the unit circle; interpret periodic functions with varying parameters.</p>	<p>Functions as Mathematical Models</p>	
<p><b>Geometry</b></p>	<p><b>Geometry</b></p>	<p><b>Geometry</b></p>
<p>Analyze figures in terms of their properties: Analyze three-dimensional shapes from a variety of two-dimensional perspectives; use the relationship among volumes of circular cylinders, hemispheres and cones with the same height and circular base and relationship between the volume of a prism and pyramid with the same base area and height.</p>	<p>Analyze Figures in Terms of Their Properties</p>	
<p>Use transformations, Cartesian coordinate system, and the concepts of similarity and congruence to solve problems: Summarize the effect of translations and reflections; illustrate symbolic representation for rotations of two-dimensional geometric shapes; calculate the slope, distance between points, coordinates of the midpoints and the distance from a point to a line; use geometric properties to identify geometric shapes; represent circles as equations; understand the relationship of dilations to similarity; use properties of similarity and congruency.</p>	<p>Transformations, Coordinate System, and Similarity</p>	

<p>Geometric relationships and theorems: Use the Pythagorean Theorem to solve problems; use sines, cosines and tangents to determine side lengths and angle measures in right triangles; use properties of special right triangles to solve problems; calculate the measure of central angles, inscribed angles and circumscribed angles; calculate arc measure and arc length within a circle; use properties of adjacent, vertical, supplementary and complementary angles to solve problems; use properties of parallel lines cut by a transversal to determine angle measures; use geometric principles to prove similarity and congruence among triangles; infer conclusions from given information.</p>	<p>Geometric Relationships and Theorems</p>	
<p><b>Measurement</b></p>	<p><b>Measurement</b></p>	<p><b>Measurement</b></p>
<p>Calculate the perimeter and area of polygons using customary and metric measurements: Use attributes of polygons and formulas to determine perimeter and area; compare the ratio of the circumference to the diameter to identify an approximate value of <math>\pi</math>; use formulas to determine the area and circumference of circles.</p>	<p>Perimeter, Area, and Measurements</p>	
<p>Analyze three-dimensional figures in terms of their volumes and surface areas: Use formulas and strategies to solve problems involving volume and surface area of prisms, cylinders, cones, spheres and composite figures; represent the relationship between the surface area of prisms, cylinders and pyramids to the sum of the area(s) of their base(s) and lateral surfaces using planar nets to illustrate and sum the relevant measures.</p>	<p>Volumes and Surface Areas</p>	

Statistics and Probability	Statistics and Probability	Statistics and Probability
<p>Use strategies to identify sample spaces and probabilities: Predict the outcomes of probability experiments for simple events based on theoretical probability; use probabilities of simple events to calculate the probabilities of independent and dependent events; use the sizes of partitioned regions within regular geometric figures to solve probability problems; compare the relationship between the experimental and theoretical probabilities; use tree diagrams , organized lists, and Fundamental Counting Principle to identify sample space and identify probabilities; analyze two-stage experiments in terms of sample spaces.</p>	<p>Sample Spaces and Probabilities</p>	
<p>Analyze graphical displays of data in terms of shape, measures of center and variability: Represent data using dot plots, stem and leaf plots, histograms, and box plots; interpret distributions of data in terms of measures of center, shape, and range; compare the meanings and uses of means, medians and modes; understand the effect of an outlier; infer conclusions that are consistent with data; classify type of bivariate data correlation; infer trends in bivariate data displayed in scatter plots, and best fit lines; predict the value of one variable based on the linear model to fit the data.</p>	<p>Analyze Graphical Displays of Data</p>	

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## Measures of Academic Progress (MAP) North Carolina State-Aligned Version 4

Reading Goal Structure	Reading DesCartes	Reading Report Names
<b>Apply Enabling Strategies and Skills</b>	<b>Apply Enabling Strategies and Skills</b>	<b>Strategies and Skills</b>
Apply book awareness, phonemic awareness, and phonics	Book Awareness, Phonemic Awareness, Phonics	
Apply knowledge of structural analysis, contractions, and compound words	Struct Analysis, Contractions, Compound Words	
Apply knowledge of context clues and vocabulary	Knowledge of Context Clues and Vocabulary	
Apply knowledge of multiple meaning words, antonyms, and synonyms	Knowledge of Multiple Meaning Words, Ant, Syn	
<b>Strategies and Skills to Comprehend: Evaluate Information from a Variety of Sources, Informational Materials</b>	<b>Strategies: Evaluate Information, Info Materials</b>	<b>Evaluate Info and Materials</b>
Recognize characteristics of informational materials	Characteristics of Informational Materials	
Locate and summarize information	Locate and Summarize Information	
Draw inferences and conclusions	Draw Inferences and Conclusions	
Determine accuracy of information, follow directions	Determine Accuracy of Info, Follow Directions	
<b>Strategies and Skills to Comprehend: Foundation and Use of Arguments, Critical Thinking (Literary and Informational Text)</b>	<b>Strategies: Argument, Crit Thinking (Lit, Info)</b>	<b>Arg, Critical Thnk; Lit, Info</b>
Summarize the author's purpose and stance	Summarize the Author's Purpose and Stance	
Recognize author's point of view	Recognize Author's Point of View	
Identify and evaluate effectiveness of tone, style, and language	Ident, Eval Effective Tone, Style, and Lang	
Recognize bias and propaganda techniques	Recognize Bias and Propaganda Techniques	
Recognize organizing structure	Recognize Organizing Structure	



Strategies and Skills to Comprehend: Interpret and Evaluate a Wide Range of Literary Texts	Strategies: Interpret, Evaluate Literary Text	Interpret, Eval Literary Text
Recognize the characteristics of literary genres	Recognize the Characteristics of Literary Genres	
Analyze literary elements and impact	Analyze Literary Elements and Impact	
Analyze literary devices	Analyze Literary Devices	
Locate and summarize main ideas and supporting details, theme	Locate, Sum Main Ideas, Support Details, Theme	
Draw inferences and conclusions, investigate stereotypes	Draw Inferences, Conclusions, Invest Stereotypes	

## Measures of Academic Progress (MAP) North Carolina State-Aligned Version 4

Language Usage Goal Structure	Language Usage DesCartes	Language Usage Report Names
<b>Apply Strategies and Skills to Create Written Texts: Preliminary Strategies (Prewrite)</b>	<b>Preliminary Strategies</b>	<b>Preliminary Strategies</b>
Use a variety of strategies to plan and organize writing	Use Strategies to Plan and Organize Writing	
Organize the writing considering purpose	Organize the Writing Considering Purpose	
Organize the writing considering audience	Organize the Writing Considering Audience	
<b>Apply Strategies and Skills to Create Written Texts: Compose Drafts, Revise to Clarify and Refine (Draft/Revise)</b>	<b>Strategies: Draft, Revise</b>	<b>Strategies: Draft, Revise</b>
Compose a draft that conveys major ideas and maintains topic	Compose Draft, Convey Major Ideas, Maintain Topic	
Use appropriate organizational pattern	Use Appropriate Organizational Pattern	
Effectively communicate content	Effectively Communicate Content	
Revise to clarify and refine	Revise to Clarify and Refine	
Use a variety of sentence patterns	Use a Variety of Sentence Patterns	
<b>Apply Strategies and Skills to Create Written Texts (Format)</b>	<b>Create Written Texts, Formats</b>	<b>Create Texts, Formats</b>
Appropriate form for the written task: create an argument that persuades	Form for Task: Create Argument that Persuades	
Appropriate form for the written task: business/personal forms	Form for Task: Business/Personal	
Appropriate form for the written task: compose structured narratives	Form for Task: Narrative	
Appropriate form for the written task: compose a variety of poetry and drama	Form for Task: Poetry and Drama	
Appropriate form for the written task: write structured, informative presentations	Form for Task: Informative Presentations	

<b>Apply Grammar and Language Conventions (Edit/Publish)</b>	<b>Grammar, Language Conventions</b>	<b>Grammar, Lang Conventions</b>
Edit final product for spelling	Edit Final Product: Spelling	
Edit final product for punctuation and capitalization	Edit Final Product: Punctuation, Capitalization	
Edit final product: apply proofreading symbols	Edit Final Product: Apply Proofreading Symbols	
Edit final product: format	Edit Final Product: Format	
Edit final product: grammar	Edit Final Product: Grammar	
<b>Apply Grammar and Language: Parts of Speech as Related to Writing</b>	<b>Grammar, Parts of Speech</b>	<b>Grammar, Parts of Speech</b>
Parts of speech: nouns and pronouns	Parts of Speech: Nouns and Pronouns	
Parts of speech: verbs	Parts of Speech: Verbs	
Parts of speech: adjectives and adverbs	Parts of Speech: Adjectives and Adverbs	
Parts of speech: phrases and clauses	Parts of Speech: Phrases and Clauses	
Parts of speech: prepositions and conjunctions	Parts of Speech: Prepositions, Conjunctions	
Parts of speech: interjections and negatives	Parts of Speech: Interjections and Negatives	

