

Measures of Academic (MAP) Minnesota State-Aligned Version 5

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 & Operation	Number & Operation	Number & Operation
Understand the relationship between quantities and whole numbers up to 31; count, compare, represent and order whole numbers up to 100,000, with an emphasis on place value and equality; representations may include numerals, pictures, real objects, picture graphs, words, spoken words, addition and subtraction, multiplication, expressions with operations, tally marks, and number lines; round numbers to the nearest 10,000, 1000, 100 and 10; round up and round down to estimate sums and differences*	Count, Compare and Represent Whole Numbers	

<p>Use a variety of models and strategies to represent addition, subtraction, multiplication and division problems in real-world and mathematical contexts; demonstrate mastery of addition, subtraction, multiplication and division basic facts; add, subtract, multiply and divide multi-digit numbers; solve real-world and mathematical problems using arithmetic; skip count by 2s, 5s, and 10s; estimate solutions to arithmetic problems in order to assess the reasonableness of results of calculations*</p>	<p>Operations: Whole Numbers</p>	
<p>Read, write, represent, compare and order fractions and decimals in real-world and mathematical situations; use place value to understand how decimals represent quantities; recognize and generate equivalent decimals, fractions, mixed numbers and improper fractions; model addition and subtraction of fractions and decimals; estimate sums and differences of decimals and fractions; solve real-world and mathematical problems requiring addition and subtraction of decimals, fractions and mixed numbers*</p>	<p>Fractions and Decimals</p>	
<p>Algebra</p>	<p>Algebra</p>	<p>Alegbra</p>
<p>Recognize, complete, create, describe, and use patterns and rules to solve real-world and mathematical problems; patterns may be repeating, growing or shrinking; identify, create and describe simple number patterns involving repeated addition or subtraction, skip counting and arrays of objects such as counters or tiles</p>	<p>Patterns: Identify, Complete, Extend</p>	
<p>Use input-output rules, tables and charts to represent patterns and relationships and to solve real-world and mathematical problems; recognize and represent patterns of change; use patterns, tables, graphs and rules to solve real-world and mathematical problems; use a rule or table to represent ordered pairs of positive integers and graph these ordered pairs on a coordinate system</p>	<p>Use Input Output Tables to Represent Patterns</p>	

Use number sentences involving addition, subtraction, multiplication, division and unknowns to represent and solve real-world and mathematical problems; create real-world situations corresponding to number sentences, equations and inequalities; understand and interpret equations and inequalities involving variables; use number sense, properties and basic facts to find values for the unknowns that make number sentences true; evaluate expressions and solve equations when values for the variables are given	Understand, Interpret, and Use Number Sentences	
Apply the commutative, associative and distributive properties and order of operations to generate equivalent numerical expressions and to solve problems involving whole numbers	Commutative, Associative & Distributive Property	
Geometry & Measurement	Geometry & Measurement	Geometry & Measurement
Recognize, sort, classify, name, sketch, and describe characteristics of basic two- and three-dimensional shapes according to their geometric attributes; use them to model real-world objects, and to compose and decompose other objects in various contexts; describe, classify, and draw representations of three-dimensional figures; identify parallel and perpendicular lines in various contexts; use spatial reasoning to model objects in the real-world	Describe, Name Two and Three Dimensional Shapes	
Compare and order objects according to location and measurable attributes; understand length, perimeter, area, volume and angle as a measurable attributes of real-world and mathematical objects; use various tools to measure length, distances, angles, and areas; determine the area of triangles and quadrilaterals; determine the surface area and volume of rectangular prisms in various contexts; classify angles as acute, right and obtuse; find the perimeter of a polygon	Measure: Length, Perimeter, Area, Volume, Angles	
Use basic concepts of measurement in real-world and mathematical situations involving time, money, and temperature	Time, Money, Temperature	
Use translations, reflections and rotations to establish congruency and understand symmetries	Translations, Reflections and Rotations	

Data Analysis	Data Analysis	Data Analysis
Collect, organize, display, and interpret data, including data collected over a period of time and data represented by fractions and decimals; use labels and a variety of scales and units in displays; determine mean, median and range; use picture graphs, number line plots, frequency tables, tables, bar graphs, Venn diagrams and line graphs to display and interpret data sets	Data: Display, Interpret, Mean, Median, Range	

*Denotes that calculator use is not permitted in this goal or sub-goal of the test.

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Mathematics 6+ Goal Structure	Mathematics 6+ DesCartes	Mathematics 6+ Report Names
Number & Operation	Number & Operation	Number & Operation
Read, write, compare, classify and represent real numbers expressed as positive and negative rational numbers, integers, fractions, decimals, percents, ratios, and in scientific notation, and use them to solve problems in various contexts; plot pairs of positive and negative rational numbers on a coordinate grid; factor whole numbers; express a whole number as a product of prime factors with exponents; determine greatest common factors and least common multiples*	Real Numbers: Classify, Represent, Compare	
Calculate with positive and negative rational numbers, decimals, fractions, mixed numbers, and rational numbers with whole number exponents; demonstrate an understanding of the relationship between the absolute value of a rational number and distance on a number line; use the symbol for absolute value*	Calculate with Rational Numbers	
Understand the concept of ratio and its relationship to fractions and to the multiplication and division of whole numbers; solve real-world and mathematical problems using percents, ratios, decimals, fractions, mixed numbers, positive and negative rational numbers, and rational numbers with whole number exponents; determine the rate for ratios of quantities with different units; estimate solutions to problems with whole numbers, fractions and decimals	Ratios, Rates & Problems with Rational Numbers	
Algebra	Algebra	Algebra

Recognize and represent relationships between varying quantities; translate from one representation to another; use patterns, tables, graphs and rules to solve real-world and mathematical problems; understand the concept of proportionality and functions in real-world and mathematical situations, and distinguish between proportional and other relationships, linear and non-linear functions; identify important features of functions and other relations using symbolic and graphical methods where appropriate	Functions: Representations, Linear & Non Linear	
Apply understanding of order of operations and algebraic properties to generate equivalent numerical and algebraic expressions containing positive and negative rational numbers, grouping symbols, polynomials and radicals; evaluate algebraic expressions containing rational numbers, whole number exponents, polynomial and rational expressions at specified values of their variables; factor common monomial factors from polynomials, factor quadratic polynomials, and factor the difference of two squares	Algebraic and Numerical Expressions; Polynomials	
Recognize proportional relationships, linear, quadratic and exponential and other common functions in real-world and mathematical situations; represent these and other relationships with tables, verbal descriptions, symbols and graphs; solve problems involving proportional relationships and functions and explain results in the original context	Functions: Linear, Quadratic, Exponential	
Represent real-world and mathematical situations using equations, inequalities and systems involving linear, quadratic, exponential, absolute value and nth root functions; solve equations and inequalities symbolically and graphically; interpret solutions in the original context	Linear, Quadratic, Root: Equations & Inequalities	
Geometry & Measurement	Geometry & Measurement	Geometry & Measurement

Calculate perimeter, area, surface area and volume of two- and three-dimensional figures to solve real-world and mathematical problems; use reasoning with proportions and ratios to determine measurements, and solve real-world and mathematical problems involving circles and related geometric figures	Area, Surface Area, Volume, and Circumference	
Choose appropriate units of measurement and use ratios to convert within and between measurement systems to solve real-world and mathematical problems; estimate weights, capacities and geometric measurements using benchmarks in measurement systems with appropriate units	Units of Measurement and Unit Conversions	
Analyze the effect of change of scale, translations and reflections on the attributes of two-dimensional figures; solve real-world and mathematical geometric problems using algebraic methods; compare geometric figures for similarity; use proportions and ratios to solve problems involving scale drawings; apply the trigonometric ratios sine, cosine and tangent to solve problems, such as determining lengths and areas in right triangles and in figures that can be decomposed into right triangles	Transformations, Similarity, and Trigonometry	
Understand and use relationships between angles in geometric figures; solve problems involving right triangles using the Pythagorean Theorem; know and apply properties of geometric figures to solve mathematical problems; construct logical arguments, based on axioms, definitions and theorems, to prove theorems and other results in geometry; use coordinate geometry to represent and analyze line segments and polygons, including determining lengths, midpoints of line segments	Geometric Properties and Logical Arguments	
Data Analysis & Probability	Data Analysis & Probability	Data Analysis & Probability

Represent probabilities using fractions, decimals and percents; reason about probabilities using proportions; use and calculate probabilities and apply probability concepts to solve real-world and mathematical problems; select and apply counting procedures, to determine the size of a sample space; calculate experimental probabilities by performing simulations or experiments involving a probability model and using relative frequencies of outcomes	Probabilities: Represent, Use, Calculate & Apply	
Use various measures associated with data to make predictions, draw conclusions, identify trends and describe relationships; interpret data using scatterplots, approximate and use lines of best fit; display and analyze data	Data: Trends, Relationships, Scatterplots	
Display and interpret data in a variety of ways, including circle graphs; show how graphs and data can be distorted to support different points of view; design simple experiments and explain the impact of sampling methods	Data: Displays, Inference, Sampling	

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Reading Goal Structure	Reading DesCartes	Reading Report Names
Word Recognition, Analysis, and Vocabulary Expansion	Word Recognition, Analysis, Vocabulary Expansion	Word Recog, Vocabulary
Read unfamiliar complex and multi-syllabic words using advanced phonetic analysis; use phonics knowledge (including consonants, blends, digraphs, and vowel combinations to decode words); identify uppercase and lowercase letters, identify words and sentences	Read Words Using Phonetic Analysis	
Divide words into syllables; use letter sounds, word patterns and parts of simple compound words to decode unfamiliar words when reading; generate rhyming words in a rhyming pattern	Divide Words into Syllables; Use Word Patterns	
Use context clues to understand new words	Use Context Clues to Understand New Words	
Use knowledge of root words, derivations, antonyms, synonyms, idioms, homonyms and multiple-meaning words to determine word meanings and to understand texts; use a growing range of descriptive words when speaking of people, places, things, actions and events; identify and analyze analogies; identify and generate antonyms and synonyms, and use them to understand and express word meaning; apply knowledge of Greek and Latin roots, prefixes, and suffixes to understand content-area vocabulary; analyze word structure and use context clues in order to understand new words	Use Knowledge of Root Words, Antonyms, Synonyms	
Comprehension: Informational	Comprehension: Informational	Comprehension: Informational
Summarize and paraphrase main idea and supporting details; demonstrate literal and inferential comprehension by asking and answering questions about informational text	Summarize and Paraphrase Main Idea and Details	

Comprehend and evaluate the purpose of informational materials; make predictions	Comprehend/Evaluate the Purpose, Make Predictions	
Analyze and draw accurate conclusions about information in informational texts; use knowledge of expository text structures to summarize content; analyze text by using pictures, diagrams, titles and headings	Analyze and Draw Conclusions; Use Text Structure	
Analyze a variety of nonfiction materials selected from journals, essays, speeches, biographies and autobiographies; make inferences based on explicit and implied information from texts	Analyze a Variety of Nonfiction Materials	
Trace the development of an author's argument, point of view, or perspective; restate the sequence of events or ideas in a text	Trace the Development of an Author's Argument	
Distinguish fact from opinion; determine cause and effect	Distinguish Fact from Opinion; Cause and Effect	
Identify, understand, and explain the various types of fallacies in logic; follow written directions in technical reading	Identify Fallacies in Logic; Follow Directions	
Comprehension: Narrative	Comprehension: Narrative	Comprehension: Narrative
Summarize and paraphrase main idea and supporting details; demonstrate literal and inferential comprehension by asking and answering questions about narrative text	Summarize and Paraphrase Main Idea and Details	
Make predictions from story content	Make Predictions from Story Content	
Use knowledge of narrative text structures to summarize content; generate and answer literal, inferential, interpretive and evaluative questions to demonstrate understanding about what is read; analyze text by using titles and headings	Use Knowledge of Narrative Text Structures	
Make inferences and draw conclusions based on explicit and implied information from texts; identify main idea and supporting details in fictional text	Make Inferences and Draw Conclusions	
Trace the development of an author's argument, point of view, or perspective; restate the sequence of events or ideas in a text	Trace the Development of an Author's Argument	

Distinguish fact from opinion; determine cause and effect	Distinguish Fact from Opinion; Cause and Effect	
Identify, understand and explain the various types of fallacies in logic	Identify Fallacies in Logic	
Literature	Literature	Literature
Read, analyze, and evaluate traditional, classical and contemporary works of literature; read texts representing a variety of genres; identify and analyze various genres and subgenres as forms with distinct characteristics and purposes; analyze and evaluate the relationships among elements of fiction; identify and analyze literary elements and devices in works of fiction including plot, setting, and theme and the ways they convey meaning	Analyze Literature; Genres; Elements of Fiction	
Analyze a character's traits, emotions, or motivation and give supporting evidence from the text; identify and analyze the effect of characters' traits on the plot and resolution of the conflict; analyze characters through identifying thoughts, words, actions, and narrator's description; identify patterns of sounds such as rhyme and rhythm in poetry	Analyze a Character's Traits; Patterns of Sound	
Evaluate the impact of an author's decisions regarding word choice, style and literary elements; analyze and evaluate how figurative language and literary devices contribute to the meaning of a text	Evaluate Word Choice, Style, and Literary Elements	
Analyze, interpret and evaluate the use of figurative language and imagery in fiction, including symbolism, tone, irony and satire; contrast points of view (such as first and third person, limited and omniscient, subjective and objective) in narrative texts and explain how they affect the overall theme of the works	Analyze the Use of Figurative Language and Imagery	
Identify and determine the meanings of similes and metaphors; critically read and evaluate texts to determine the author's purpose	Identify Similes and Metaphors; Author's Purpose	

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Language Usage Goal Structure	Language Usage DesCartes	Language Usage Report Names
Types of Writing and Research: The student will write in narrative, expository, descriptive, persuasive and critical modes	Types of Writing and Research	Writing Types, Research
Write in a variety of forms: narrative, dramatic, and poetic, including but not limited to, poetry, stories, plays; create narratives that develop settings, people, characters, dialogue, and conflicts using descriptive, concrete language to engage audiences	Variety of Forms: Narrative	
Write in a variety of forms: expository, descriptive, persuasive and critical forms, essays, journals, editorials, letters, directions, business communications, research reports; organize information for logical progression; cite sources of information using a standard method of documentation, such as a style sheet from the Modern Language Association (MLA)	Variety of Forms: Informational	
Elements of Composition: The student will engage in a writing process with attention to audience, organization, focus, quality of ideas, and a purpose	Elements of Composition	Elements of Composition
Use composing processes to develop writing, including: prewriting, drafting, revising, editing; revise writing for improved sentence structure, voice, tone and word choice, clarity, coherence, smooth transitions and unity; revise, edit and prepare final drafts for intended audiences and purposes	Use Composing Processes to Develop Writing	

Use an extensive variety of sentences for meaning and stylistic effect; compose complete sentences when writing; organize ideas for writing; write topic sentences; develop a thesis and clear purpose for writing; make generalizations and use supporting details; arrange paragraphs into a logical progression; create multiple paragraph compositions that state, maintain and use details in a logical order to support a main idea	Sentences and Paragraphing	
Grammar and Usage: The student will apply standard English conventions when writing	Grammar and Usage	Grammar and Usage
Edit writing for correct grammar: correctly use like/as if, any/any other, this kind/these kinds, who/that, and every/many; correctly use reflexive case pronouns and nominative and objective case pronouns, including who; correctly use the possessive pronoun before the gerund; correctly use nominative, reflexive, objective, and possessive pronouns; prepositional phrases	Edit Writing for Grammar: Nouns and Pronouns	
Edit writing for correct grammar: correctly use verb forms with attention to subjunctive mood, subject/verb agreement; apply grammar conventions correctly in writing, including consistent verb tense; active/passive voice; subjunctive mood; identify adverbs and adjectives and use correctly	Edit Writing for Grammar: Verbs, Modifiers	
Apply grammar conventions correctly in writing, including subject and verb agreement with simple and compound subjects; pronoun/antecedent agreement; subject and verb agreement when interrupted by a phrase	Apply Grammar Conventions Correctly in Writing	
Spelling, Punctuation, and Capitalization: The student will apply standard English conventions when writing	Spelling, Punctuation, and Capitalization	Spelling, Punc, Capitalization

<p>Apply punctuation conventions correctly in writing, including apostrophes; commas in a series, in compound sentences, and after subordinating conjunctions, nouns of address, and non-essential clauses; colons; semi-colons; sentence beginnings, first words in quotes; hyphens; dashes; quotation marks; quotation marks to identify dialogue; apply punctuation conventions correctly in writing, including capitalization of proper nouns</p>	<p>Apply Punctuation Conventions Correctly in Writing</p>	
<p>Recognize and correct spelling errors when writing; spell common homophones correctly; spell correctly one-syllable and two-syllable words that have blends, contractions and compounds; spell roots, suffixes, prefixes, contractions, and syllable constructions correctly</p>	<p>Recognize and Correct Spelling Errors in Writing</p>	