

# Measures of Academic Progress (MAP) Missouri 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>
Read, write, model, and count whole numbers up to six digits	Whole Numbers: Read, Write, Model, Count	
Compare, order and round whole numbers up to six digits	Whole Numbers: Compare, Order, and Round	
Understand place value by composing and decomposing numbers to recognize equivalent representations for the same number and to generate numbers	Whole Numbers: Place Value	
Recognize and represent commonly used fractions, judging their size by using models and benchmarks	Fraction, Decimal, Percent: Recognize, Represent	
Compare, order, and round unit fractions and decimals to thousandths	Fraction, Decimal, Percent: Compare, Order, Round	
Recognize and generate equivalent forms of commonly used fractions, decimals, and percents	Fraction, Decimal, Percent: Equivalence	
Describe numbers according to their characteristics, including whole number factors, multiples, prime or composite, odd or even, and square numbers	Number Theory	

Apply commutative and identity properties of addition and multiplication and the distributive and associative properties to whole numbers	Properties	
Describe or notate a mental strategy used to compute a given problem with whole numbers, involving addition or subtraction, including 2-digit numbers, multiplication (up to 2-digit by 2-digit multiple of), and division, where the quotient is a multiple of 10 and the divisor is a 1-digit number (e.g., $350 / 7$ ); estimate and justify the results of addition, subtraction, multiplication and division of whole numbers; judge the reasonableness of numerical computations and their results	Estimation	
Represent a given situation involving addition and subtraction of whole numbers; apply and describe the strategy used to compute up to a 3-digit addition or subtraction problem	Whole Numbers: Addition and Subtraction	
Recognize multiplication using various models including sets and arrays and division, including quotative and partitive; apply and describe the strategy used to compute a given multiplication problem up to a 2-digit by 2-digit, division problem up to a 3-digit by 2-digit	Whole Numbers: Multiplication and Division	
<b>Algebraic Relationships</b>	<b>Algebraic Relationships</b>	<b>Algebraic Relationships</b>
Extend, make, and describe generalizations about geometric and numeric patterns; represent and analyze patterns using words, tables and graphs; use coordinate systems to specify locations, describe paths and find the distance between points along horizontal and vertical lines	Patterns	
Represent a mathematical situation as an expression or number sentence using a letter or symbol	Variables and Expressions	
Model problem situations and draw conclusions, using representations such as graphs, tables or number sentence	Equations	
<b>Geometric and Spatial Relationships</b>	<b>Geometric and Spatial Relationships</b>	<b>Geometric Relationships</b>

Recognize, name, and identify and describe attributes of 2- and 3-dimensional shapes; predict, describe, and justify the results of subdividing, combining, and transforming shapes; recognize and represent shapes from different perspectives (e.g., positions and nets)	2- and 3-D Shapes	
Specify relative positions, describe paths, and find distances, using a variety of coordinate representations	Coordinate Systems	
Model, predict, and describe the results of sliding/ translating, flipping/ reflecting and turning/ rotating around a center point of a polygon and determine if two figures are congruent through a slide, flip, or turn; recognize shapes and designs with line, identifying lines of symmetry	Symmetry and Transformations	
<b>Measurement</b>	<b>Measurement</b>	<b>Measurement</b>
Describe passages of time, tell time, and solve problems involving elapsed time (hours); identify coins and determine change from \$10.00 and add and subtract money values to \$10.00; use tools to measure temperature	Time, Money, and Temperature	
Use repetition of a single unit to measure something larger than the unit, (e. g., measuring the length of the room with a single meter stick); use tools to measure size and weight	Length, Weight, Capacity	
Identify and justify the unit of measure for perimeter and area (customary metric); determine the perimeter of polygons and describe how to solve problems involving the area of polygons and non-polygonal regions imposed on a rectangular grid	Perimeter and Area	

Identify and justify the unit of measure for time, length, weight, perimeter and area (customary metric); compare and order objects according to their size or weight and choose an appropriate tool for measuring; tell time to the nearest minute; select and use benchmarks to compare and estimate measurements (linear, capacity, weight) and estimate measurements of 0-, 45-, 90- degree angles identify the equivalent linear measurement, weights, and capacities within a system of measurement; measure (size, temperature, time, weight) to the nearest inch, centimeter, degree, hour and pound; convert from one unit to another within a system of measurement (linear)	Units, Tools, Estimation, Precision, Conversion	
<b>Data and Probability</b>	<b>Data and Probability</b>	<b>Data and Probability</b>
Pose questions, gather data, design investigations to address a given question, collect data, and evaluate data-collection methods; sort and classify items according to their attributes and organize data about the items; describe methods to collect, organize and represent categorical and numerical data; represent data using pictures and bar graphs; describe the shape and important features of data and analyze it for patterns; compare related data sets; compare different representations of the same data and evaluate how well each representation shows important aspects of the data; given a set of data, propose and justify conclusions and prediction(s) that are based on the data	Organize and Interpret Graphs and Data	
Describe the degree of likelihood of events using such words as certain, equally likely and impossible	Probability	

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

<b>Mathematics 6+ Goal Structure</b>	<b>Mathematics 6+ DesCartes</b>	<b>Mathematics 6+ Report Names</b>
<b>Number and Operations</b>	<b>Number and Operations</b>	<b>Number and Operations</b>
Read, write, model, and count whole numbers, integers, and rational numbers*	Whole Numbers: Read, Write, Model, Count	
Compare, order, and round whole numbers, integers, rational numbers, including percents*	Whole Numbers: Compare, Order, and Round	
Understand place value by composing and decomposing numbers to recognize equivalent representations for the same number and to generate numbers*	Whole Numbers: Place Value	
Recognize and represent fractions, judging their size by using models and benchmarks*	Fraction, Decimal, Percent: Identify, Represent	
Compare, order, and round fractions, decimals, and percents*	Fraction, Decimal, Percent: Compare, Order, Round	
Recognize and generate equivalent forms of fractions, decimals, and percents*	Fraction, Decimal, Percent: Equivalence (Basic)	
Describe numbers according to their characteristics, including whole number factors, multiples, common factors and multiples, prime or composite, odd or even, and square numbers	Number Theory	
Apply commutative and identity properties of addition and multiplication and the distributive and associative properties to whole numbers; apply properties of operations to rational numbers, including order of operations and inverse operations*	Properties	

Describe or notate a mental strategy used to compute a given problem with whole numbers, involving addition or subtraction, including 2-digit numbers, multiplication (up to 2-digit by 2-digit multiple of), and division, where the quotient is a multiple of 10 and the divisor is a 1-digit number (e.g., $350 \div 7$ ); estimate and justify the results of addition, subtraction, multiplication and division of whole numbers and rational numbers; judge the reasonableness of numerical computations and their results*	Estimation	
Represent a given situation involving addition and subtraction of whole numbers; apply and describe the strategy used to compute up to a 3-digit addition or subtraction problem*	Whole Numbers: Addition and Subtraction	
Recognize multiplication using various models including sets and arrays and division, including quotative and partitive; apply and describe the strategy used to compute a given multiplication problem up to a 2-digit by 2-digit, division problem up to a 3-digit by 2-digit*	Whole Numbers: Multiplication and Division	
Describe the effects of adding, subtracting, multiplying, and dividing fractions, as well as the relationship between pairs of operations*	Fractions: Add, Subtract, Multiply, Divide	
Describe the effects of adding, subtracting, multiplying, and dividing decimals, as well as the relationship between pairs of operations*	Decimals: Add, Subtract, Multiply, Divide	
Read, write, compare and order integers, rational and irrational numbers, and find their approximate locations on a number line; describe the effects of adding, subtracting, multiplying, and dividing integers, rational, and real numbers*	Integers, Rational and Real Numbers	
Solve problems involving equivalent ratios and proportions, such as scaling and finding equivalent ratios	Proportion and Percent	

Approximate the value of square roots to the nearest whole number, and apply the relationship between squares and square roots to solve a problem; apply properties of exponents to simplify expressions or solve equations; recognize equivalent representations for the same number, using expanded, exponential, and scientific notations; use a variety of representations to demonstrate an understanding of very large and very small numbers	Powers, Roots, Scientific Notation	
Apply operations to vectors, using mental computation or paper-and-pencil calculations for simple cases and technology for more complicated cases; use vectors and matrices as systems and compare their properties to the real-number system; apply properties of logarithms and functions to simplify expressions or solve equations	Matrices, Logarithms, and Vectors	
<b>Algebraic Relationships</b>	<b>Algebraic Relationships</b>	<b>Algebraic Relationships</b>
Extend, make, and describe generalizations about geometric and numeric patterns; represent and analyze patterns using words, tables and graphs; generalize patterns using explicitly or recursively defined functions; compare and contrast various forms of representations of patterns	Patterns and Sequences	
Represent a mathematical situation as an expression or number sentence using a letter or symbol; generate equivalent forms for algebraic expressions and linear expressions	Variables and Expressions	
Model problem situations and draw conclusions, using representations such as graphs, tables or number sentence; use variables to represent unknown quantities in equations and inequalities; model and solve problems, using multiple representations such as graphs, tables, equations or inequalities; use and solve equivalent forms of equations and inequalities (linear, piece-wise, quadratic, exponential, logarithmic, rational, and polynomial); use and solve systems of equations or inequalities	Equations and Inequalities	

Understand and compare the properties of linear, quadratic, exponential, logarithmic and rational functions (include asymptotes); describe the effects of parameter changes on linear, quadratic, logarithmic and exponential functions; describe and use algebraic manipulations, including inverse of functions, composition of functions and rules of exponents; identify quantitative relationships and determine the type(s) of functions that might model the situation to solve the problem (including recursive forms); analyze linear, quadratic, exponential, logarithmic, rational, polynomial and periodic functions by investigating rates of change, intercepts and asymptotes	Functions	
<b>Geometric and Spatial Relationships</b>	<b>Geometric and Spatial Relationships</b>	<b>Geometric Relationships</b>
Recognize, name, and identify and describe attributes of 1-, 2-, and 3-dimensional shapes; predict, describe, and justify the results of subdividing, combining, and transforming shapes; recognize and represent shapes from different perspectives (positions, nets, cross sections); use vertex-edge graphs or networks to show optimal solutions; apply the Pythagorean Theorem to describing, classifying, and generalizing shapes and to problem solving	1-, 2-, and 3-D Shapes, Pythagorean Theorem	
Specify relative positions, describe paths, and find distances, using a variety of coordinate representations; draw and use vertex-edge graphs or networks to find optimal solutions; establish the validity of geometric conjectures, using inductive and deductive proof; use trigonometric relationships to determine length and angle measures; use vectors in problems involving velocity and direction; use coordinate systems to analyze geometric situations (navigational, polar, spherical)	Coordinate Systems, Proof, and Trigonometry	

Model, predict, describe the results of, and reposition shapes by sliding/ translating, flipping/ reflecting, turning/ rotating around a center point of a polygon, and dilating/stretching and shrinking; recognize shapes and designs with line, identifying lines of symmetry; describe the relationship between scale factor and perimeter/area of a dilated image	Transformations, Symmetry, and Scale	
Use corresponding sides and angles of similar shapes to describe relationships and solve problems; apply relationships among surface areas and volumes of similar objects; determine if two figures are congruent through a slide, flip, or turn	Similarity and Congruence	
<b>Measurement</b>	<b>Measurement</b>	<b>Measurement</b>
Describe passages of time, tell time, and solve problems involving elapsed time (hours); identify coins and determine change from \$10.00 and add and subtract money values to \$10.00; use tools to measure temperature	Time, Money, Temperature, and Angles	
Use repetition of a single unit to measure something larger than the unit, (e.g., measuring the length of the room with a single meter stick); use tools to measure size and weight	Length, Weight/Mass, Capacity	
Identify and justify the unit of measure for perimeter and area (customary metric); determine the perimeter of polygons and describe how to solve problems involving the area of polygons and non-polygonal regions imposed on a rectangular grid	Perimeter, Circumference, and Area	
Identify and justify the unit of measure for time, length, weight, perimeter and area (customary metric); compare and order objects according to their size or weight and choose an appropriate tool for measuring; tell time to the nearest minute; select and use benchmarks to compare and estimate measurements (linear, capacity, weight) and estimate measurements of 0-, 45-, 90- degree angles identify the equivalent linear measurement, weights, and capacities within a system of measurement; measure (size, temperature, time, weight) to the nearest inch, centimeter, degree, hour and pound; convert from one unit to another within a system of measurement (linear)	Units, Tools, Estimation, Precision, Conversion	

<p>Describe how to solve problems involving surface area and/or volume of a rectangular or triangular prism, or cylinder; identify the equivalent volume measures within a system of measurement; determine the surface area, and volume of geometric figures, including cones, spheres, and cylinders; apply relationships among surface areas and among volumes of similar objects; determine the effect on surface area or volume of changing one measurement; use unit analysis to solve problems involving rates, such as speed, density or population density, circular velocity, acceleration or flow rates</p>	<p>Surface Area, Volume, and Rate</p>	
<p><b>Data and Probability</b></p>	<p><b>Data and Probability</b></p>	<p><b>Data and Probability</b></p>

<p>Pose questions, gather data, design investigations to address a given question, collect data, and evaluate data-collection methods; sort and classify items according to their attributes and organize data about the items; describe methods to collect, organize and represent categorical and numerical data; select, create and use appropriate graphical representation of data, using pictures, bar graphs, stem-and-leaf plots, circle graphs, histograms, box plots (box and whiskers), scatter plots, describe the shape and important features of data, and analyze it for patterns; compare related data sets; compare different representations of the same data and evaluate how well each representation shows important aspects of the data; describe the characteristics of well designed studies, including the role of randomization in survey and experimental research; describe the characteristics of well designed studies, including the role of randomization in survey and experimental research; given a set of data, propose and justify conclusions and prediction(s) that are based on the data; display and analyze bivariate data where one variable is categorical and the other is numerical; create a scatterplot, describe its shape, determine and make conjectures about regression equations using technological tools; describe how sample statistics reflect the values of population parameters; use sampling and simulations to describe the variability of sample statistics from a known population and to construct sampling distributions; describe how basic statistical techniques are used in the workplace</p>	<p>Organize and Interpret Graphs and Data</p>	
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<p>Describe the degree of likelihood of events using such words as certain, equally likely and impossible; use a model (diagrams, list, sample space, or area model) to illustrate the possible outcomes of an event; make conjectures (based on theoretical probability) about the results of experiments; construct and describe the concepts of sample space and probability distribution; compute and interpret the expected value of random variables; use simulations to construct empirical probability distributions; use and describe the concepts of conditional probability and independent events and how to compute the probability of a compound event</p>	<p>Probability</p>	
<p>Find, use and interpret measures of center, outliers and spread, including range and interquartile range; apply statistical concepts to solve problems and distinguish between a statistic and a parameter; given one- variable quantitative data, display the distribution, describe its shape and calculate summary statistics; recognize how linear transformations of single- variable data affect shape, center, and spread</p>	<p>Central Tendency and Regression</p>	

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Reading Goal Structure	Reading DesCartes	Reading Report Names
<b>Develop and apply skills and strategies to the reading process: Print Concepts, Phonemic Awareness, Phonics, Vocabulary</b>	<b>Print Concepts, Phonemes, Phonics, Vocabulary</b>	<b>Phonics, Vocabulary</b>
Print Concepts, Phonemic Awareness, Phonics: Demonstrate concepts of print: word by word matching; upper- and lower-case letters; develop ability to recognize sounds (phonemes) in words (phonemic awareness); demonstrate ability to use phonemes to construct words: recognize rhyming words; develop and apply decoding strategies to "problem-solve" unknown words when reading instructional text; identify letters; write letter that goes with consonant sound	Print Concepts, Phonemic Awareness, Phonics	
Vocabulary: Root Words, Affixes, and Word Chunks	Vocabulary: Root Words, Affixes, and Word Chunks	
Vocabulary: Context Clues and Using a Glossary, Dictionary, and Thesaurus	Vocabulary: Context Clues and Using Resources	
Vocabulary: Synonyms and Antonyms	Vocabulary: Synonyms and Antonyms	
<b>Develop and apply skills and strategies to the reading process: Pre-Reading, During Reading, and Post-Reading</b>	<b>Pre-Reading, During Reading, and Post-Reading</b>	<b>Reading Process</b>
Pre-Reading: Apply pre-reading strategies to aid comprehension; predict	Pre-Reading	
During Reading: Utilize strategies to infer, paraphrase, summarize	During Reading	

Post-Reading: Apply post-reading skills to comprehend, interpret, analyze, and evaluate text: draw conclusions; identify the main idea and supporting details; identify and explain the relationship between the main idea and supporting details	Post-Reading	
<b>Develop and apply skills and strategies to comprehend, analyze and evaluate fiction, poetry and drama</b>	<b>Fiction, Poetry, Drama</b>	<b>Fiction, Poetry, Drama</b>
Text Features: Analyze and evaluate the text features in grade-level text; locate, interpret and apply information in title, table of contents and glossary; recognize and interpret the text features of fiction, poetry and drama	Text Features	
Literary Techniques: Identify examples of rhythm, rhyme and alliteration; Identify and explain examples of sensory details and figurative language in text; Identify and explain literary techniques (simile, metaphor, personification, onomatopoeia, alliteration, hyperbole, imagery, propaganda, jargon, dialect, slang, symbolism, irony, repeated sound, line or phrase, parallelism, allusion, analogy, satire)	Literary Techniques	

<p>Literary Elements: Use details from text to identify characters; make inferences about setting, character traits and problem and solution, and story events; analyze character, plot, setting, point of view; interpret behaviors, motives, and consequences of characters' actions; identify problem; identify and predict solution(s); identify setting; identify events in logical sequence; identify events from the beginning, middle and end; identify plot, including problem/conflict, climax, and resolution; identify mood, flashback, theme and types of conflict; compare and contrast; identify, explain, and analyze cause and effect; identify the narrator; identify and explain author's purpose; identify, explain, and analyze point of view; evaluate the effect of author's style; identify and analyze tone</p>	<p>Literary Elements</p>	
<p><b>Develop and apply skills and strategies to comprehend, analyze and evaluate nonfiction</b></p>	<p><b>Nonfiction</b></p>	<p><b>Nonfiction</b></p>
<p>Text Features and Literary Techniques: Identify and explain information in text, pictures, title and charts; locate, interpret, and apply information in illustrations, title, headings, captions, diagrams, charts and graphs, chapter headings, table of contents, glossary, and maps; explain, analyze and evaluate the author's use of text features to clarify meaning; identify and explain text features in biography and autobiography; identify and explain examples of sensory details, literary techniques, and figurative language in nonfiction text</p>	<p>Text Features and Literary Techniques</p>	

<p>Text Structures and Understanding Directions: Use details from informational, persuasive, and argumentative text(s) to answer questions, sequence events, identify and explain cause and effect, compare and contrast, identify and interpret author's ideas and purpose, distinguish between fact and opinion, analyze and evaluate the accuracy and adequacy of evidence, determine authors' viewpoints, analyze and evaluate point of view, analyze and evaluate effectiveness of word choice, identify and explain the organizational pattern, identify and analyze faulty reasoning and unfounded inferences, analyze and evaluate the type of appeal (emotional, ethical, and logical); read and follow simple directions to perform a task; read and follow multi-step directions to complete a task</p>	<p>Text Structures and Understanding Directions</p>	
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## Measures of Academic Progress (MAP) Missouri State-Aligned Version 4

Language Usage Goal Structure	Language Usage DesCartes	Language Usage Report Names
<b>Apply a writing process in composing text: Follow a writing process; apply a writing process to write effectively in various forms and types of writing</b>	Apply a Writing Process in Composing Text	Writing Process
Use appropriate prewriting strategies as needed; generate a draft	Prewriting Strategies; Generate Draft	
Revise for audience and purpose, ideas and content, organization and sentence structure, and word choice; revise in response to feedback; revise writing to clarify meaning and enhance descriptions; edit for conventions	Revise and Edit	
<b>Compose Well-developed text: Audience and Purpose, Ideas and Content, Organization and Sentence Structure, Word Choice</b>	<b>Compose Well-developed Text: Content</b>	<b>Compose Text: Content</b>
Audience and Purpose: Compose text showing awareness of audience; in a format appropriate to audience and purpose; choosing a form appropriate to topic and specific audience; choosing a form and point of view appropriate to purpose and audience	Audience and Purpose	

<p>Ideas and Content and Organization and Sentence Structure: Compose text with strong controlling idea, relevant specific details, complex ideas; compose text with a simple opening and simple closing; a clear and effective beginning, middle, and end; a logical sequence of events/order; appropriate/effective paragraphing; complete sentences or thoughts (declarative and interrogative); sentence variety (including imperative and exclamatory); a variety of sentence structures, including simple and compound, complex sentences, and compound-complex; cohesive devices, including transitions and parallel structure; clarity of expression</p>	<p>Ideas, Content, Organization, Sentence Structure</p>	
<p>Word Choice: Compose text using words that are related to the topic, and some words that are specific and accurate; compose text using precise and vivid language, writing techniques such as figurative language, sensory detail and purposeful dialogue, imagery, and rhetorical devices</p>	<p>Word Choice</p>	
<p><b>Compose Well-developed text: Conventions</b></p>	<p><b>Compose Well-developed Text: Conventions</b></p>	<p><b>Compose Text: Conventions</b></p>
<p>Apply and use conventions of capitalization: capitalize names of people and beginning words of sentences; capitalize days of the week, names of towns, cities, states; capitalize months of the year, titles of individuals, greeting and closing of letter; capitalize holidays, names of counties and countries; capitalize titles and proper nouns; capitalize proper adjectives; capitalize appropriate words in dialogue; capitalize within dialogue</p>	<p>Capitalization</p>	

Apply and use conventions of punctuation: use ending punctuation in written text; use a period at the end of sentence and a comma in the greeting and closing of a letter; use correct ending punctuation in declarative and interrogative sentences, comma in dates; use correct ending punctuation in imperative and exclamatory sentences; use commas in a series, and between city and state; use comma in compound sentences, apostrophe in irregular and plural possessives, quotation marks in dialogue; use commas in quotation marks in dialogue, and semi-colon in compound sentences; punctuate prepositional phrases and appositives correctly; use apostrophe in contractions and singular possessives; use colon to introduce lists	Punctuation	
Apply and use standard usage: use naming words (nouns) and action words (verbs) correctly; correctly use describing words (adjectives) and substitute pronouns for nouns; correctly use verbs that agree with the subject, and comparative and superlative forms of adverbs and adjectives; correctly use verbs that agree with compound subject, and conjunctions; use correct verb tense and subject/verb agreement; use correct agreement of pronoun and antecedent; and consistent verb tense; use correct pronoun case	Standard Usage	
Spell words with simple patterns and high frequency words correctly; correctly spell simple compounds, homophones, contractions and words with affixes; use standard spelling	Spelling Patterns and High Frequency Words	
<b>Write effectively in various forms and types of writing</b> <b>Forms/Types/Modes of Writing: Compose a variety of texts</b>	<b>Forms/Types/Modes of Writing</b>	<b>Forms/Types/ Writing Modes</b>
Use narrative, descriptive, expository, and/or persuasive features; compose narrative, descriptive, expository, and/or persuasive texts, using appropriate text features	Types and Modes of Writing	

<p>Recognize different forms of written communication (e.g., thank-you notes, friendly letters, lists, poems, invitations); compose thank-you notes, friendly letters, lists, invitations; text emphasizing the format of diary/journal entries and friendly letters; selecting and using an appropriate format; email communications; resume, letter of application, follow-up letter)</p>	<p>Forms of Written Communication</p>	
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