



Arizona Mathematics Standards

2016 Content Emphasis

Kindergarten

Kindergarten Major and Supporting Content Emphasis

Course content indicated by: ● major content; ▲ supporting content.

Counting and Cardinality (CC)

- Know number names and the count sequence.
- Count to tell the number of objects.
- Compare numbers

Operations and Algebraic Thinking (OA)

- Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from

Number and Operations in Base Ten (NBT)

- Work with numbers 11-19 to gain foundations for place value
- Use place value understanding and properties of operations to add and subtract.

Measurement and Data (MD)

- ▲ Describe and compare measurable attributes
- ▲ Classify objects and count the number of objects in categories

Geometry (G)

- ▲ Identify and describe shapes
- ▲ Analyze, compare, create and compose shapes



Arizona Mathematics Standards

2016 Content Emphasis

First Grade

First Grade Major and Supporting Content Emphasis

Course content indicated by: ● major content; ▲ supporting content.

Operations and Algebraic Thinking (OA)

- Represent and solve problems involving addition and subtraction.
- Understand and apply properties of operations and the relationship between addition and subtraction.
- Add and subtract within 20.
- Work with addition and subtraction equations.

Number and Operations in Base Ten (NBT)

- Extend the counting sequence.
- Understand place value.
- Use place value understanding and properties to add and subtract.

Measurement and Data (MD)

- Measure lengths indirectly and by iterating length units.
- ▲ Work with time and money.
- ▲ Represent and interpret data.

Geometry (G)

- ▲ Reason with shapes and their attributes.



Arizona Mathematics Standards

2016 Content Emphasis

Second Grade

Second Grade Major and Supporting Content Emphasis

Course content indicated by: ● major content; ▲ supporting content.

Operations and Algebraic Thinking (OA)

- Represent and solve problems involving addition and subtraction.
- Add and subtract within 20.
- ▲ Work with equal groups of objects to gain foundations for multiplication.

Number and Operations in Base Ten (NBT)

- Understand place value.
- Use place value understanding and properties of operations to add and subtract.

Measurement and Data (MD)

- Measure and estimate lengths in standard units.
- Relate addition and subtraction to length.
- ▲ Work with time and money.
- ▲ Represent and interpret data.

Geometry (G)

- ▲ Reason with shapes and their attributes.



Arizona Mathematics Standards

2016 Content Emphasis

Third Grade

Third Grade Major and Supporting Content Emphasis

Course content indicated by: ● major content; ▲ supporting content.

Operations and Algebraic Thinking (OA)

- Represent and solve problems involving whole number multiplication and division.
- Understand properties of multiplication and the relationship between multiplication and division.
- Multiply and divide within 100.
- Solve problems involving the four operations, and identify and explain patterns in arithmetic.

Number and Operations in Base Ten (NBT)

Note: A range of algorithms may be used.

- ▲ Use place value understanding and properties of operations to perform multi-digit arithmetic.

Number and Operations - Fractions (NF)

Note: Grade 3 expectations are limited to fractions with denominators 2, 3, 4, 6, 8

- Understand fractions as numbers.

Measurement and Data (MD)

- ▲ Solve problems involving measurement.
- ▲ Represent and interpret data.
- Geometric measurement: Understand concepts of area and perimeter.

Geometry (G)

- ▲ Reason with shapes and their attributes.



Arizona Mathematics Standards

2016 Content Emphasis

Fourth Grade

Fourth Grade Major and Supporting Content Emphasis

Course content indicated by: ● major content; ▲ supporting content.

Operations and Algebraic Thinking (OA)

- Use the four operations with whole numbers to solve problems.
- ▲ Gain familiarity with factors and multiples.
- ▲ Generate and analyze patterns.

Number and Operations in Base Ten (NBT)

Note: Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.

- Generalize place value understanding for multi-digit whole numbers.
- Use place value understanding and properties of operations to perform multi-digit arithmetic.

Number and Operations - Fractions (NF)

Note: Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100

- Extend understanding of fraction equivalence and ordering.
- Apply and extend previous understanding of multiplication to multiply a whole number by a fraction.
- Understand decimal notation for fractions, and compare decimal fractions.

Measurement and Data (MD)

- ▲ Solve problems involving measurement and conversion of measurements from a larger unit to a small unit.
- ▲ Represent and interpret data.
- ▲ Geometric measurement: understand concepts of angle and measure angles.

Geometry (G)

- ▲ Draw and identify lines and angles, and classify shapes by properties of their lines and angles.



Arizona Mathematics Standards

2016 Content Emphasis

Fifth Grade

Fifth Grade Major and Supporting Content Emphasis

Course content indicated by: ● major content; ▲ supporting content.

Operations and Algebraic Thinking (OA)

- ▲ Write and interpret numerical expressions.
- ▲ Analyze patterns and relationships.

Number and Operations in Base Ten (NBT)

- Understand the place value system.
- Perform operations with multi-digit whole numbers and with decimals to hundredths.

Number and Operations - Fractions (NF)

- Use equivalent fractions to add and subtract fractions.
- Use previous understandings of multiplication and division to multiply and divide fractions.

Measurement and Data (MD)

- ▲ Convert like measurement units within a given measurement system.
- ▲ Represent and interpret data.
- Geometric measurement: understand concepts of volume and relate volume to multiplication and addition.

Geometry (G)

- ▲ Graph points on the coordinate plane to solve mathematical problems as well as problems in real-world context.
- ▲ Classify two-dimensional figures into categories based on their properties.



Arizona Mathematics Standards

2016 Content Emphasis

Sixth Grade

Sixth Grade Major and Supporting Content Emphasis

Course content indicated by: ● major content; ▲ supporting content.

Ratio and Proportion (RP)

- Understand ratio concepts and use ratio reasoning to solve problems.

The Number System (NS)

- Apply and extend previous understandings of multiplication and division to divide fractions by fractions.
- Compute fluently with multi-digit numbers and find common factors and multiples.
- Apply and extend previous understanding of numbers to the system of rational numbers. (Note: Limit negative rational numbers to integers and fractions with denominators of 2, 3, 4, 5, 10.)

Expressions and Equations (EE)

- Apply and extend previous understandings of arithmetic to algebraic expressions.
- Reason about and solve one-variable equations and inequalities.
- Represent and analyze quantitative relationships between dependent and independent variables.

Geometry (G)

- ▲ Solve mathematical problems and problems in real-world context involving area, surface area, and volume.

Statistics and Probability (SP)

- ▲ Develop understanding of statistical variability.
- ▲ Summarize and describe distributions.



Arizona Mathematics Standards

2016 Content Emphasis

Seventh Grade

Seventh Grade Major and Supporting Content Emphasis

Course content indicated by: ● major content; ▲ supporting content.

Ratio and Proportion (RP)

- Analyze proportional relationships and use them to solve mathematical problems and problems in real-world context.

The Number System (NS)

- Apply and extend previous understanding of operations with fractions to add, subtract, multiply, and divide rational numbers except division by zero.

Expressions and Equations (EE)

- Use properties of operations to generate equivalent expressions.
- Solve mathematical problems and problems in real-world context using numerical and algebraic expressions and equations.

Geometry (G)

- ▲ Draw, construct and describe geometrical figures and describe the relationships between them.
- ▲ Solve mathematical problems and problems in real-world context involving angle measure, area, surface area, and volume.

Statistics and Probability (SP)

- ▲ Use random sampling to draw inferences about a population.
- ▲ Draw informal comparative inferences about two populations.
- ▲ Investigate chance processes and develop, use, and evaluate probability needs.



Arizona Mathematics Standards

2016 Content Emphasis

Eighth Grade

Eighth Grade Major and Supporting Content Emphasis

Course content indicated by: ● major content; ▲ supporting content.

The Number System (NS)

- Understand that there are irrational numbers, and approximate them using rational numbers.

Expressions and Equations (EE)

- Work with radicals and integer exponents.
- Understand the connections between proportional relationships, lines, and linear equations.
- Analyze and solve linear equations and pairs of simultaneous linear equations.

Functions (F)

- Define, evaluate, and compare functions.
- Use functions to model relationships between quantities.

Geometry (G)

- ▲ Understand congruence and similarity.
- ▲ Understand and apply the Pythagorean Theorem.
- ▲ Solve real-world and mathematical problems involving volume of cylinders, cones and spheres.

Statistics and Probability (SP)

- ▲ Investigate patterns of association in bivariate data.
- ▲ Investigate chance processes and develop, use, and evaluate probability models.



Arizona Mathematics Standards

2016 Content Emphasis

Algebra 1

Course content indicated by: ● major content; ▲ supporting content.

The Real Number System (N-RN)

- ▲ Use properties of rational and irrational numbers.

Quantities (N-Q)

- Reason quantitatively and use units to solve problems.

Seeing Structure in Expressions (A-SSE)

- Interpret the structure of expressions.
- Write expressions in equivalent forms to solve problems.

Arithmetic with Polynomials and Rational Expressions (A-APR)

- ▲ Perform arithmetic operations on polynomials.
- Understand the relationship between zeros and factors of polynomials.

Creating Equations (A-CED)

- Create equations that describe numbers or relationships.

Reasoning with Equations and Inequalities (A-REI)

- Understand solving equations as a process of reasoning and explain the reasoning.
- ▲ Solve equations and inequalities in one variable.
- ▲ Solve systems of equations.
- ▲ Represent and solve equations and inequalities graphically.

Interpreting Functions (F-IF)

- Understand the concept of a function and use function notation.
 - Interpret functions that arise in applications in terms of the context.
 - Analyze functions using different representations.
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Arizona Mathematics Standards

Algebra 1 (continued)

Building Functions (F-BF)

- Build a function that models a relationship between two quantities.
- ▲ Build new functions from existing functions.

Linear, Quadratic, and Exponential Models (F-LE)

- Construct and compare linear, quadratic, and exponential models and solve problems.
- Interpret expressions for functions in terms of the situation they model.

Interpreting categorical and quantitative data (S-ID)

- ▲ Summarize, represent, and interpret data on a single count or measurement variable.
- ▲ Summarize, represent, and interpret data on two categorical and quantitative variables.
- Interpret linear models.

Conditional Probability and the Rules of Probability (S-CP)

- ▲ Understand independence and conditional probability and use them to interpret data.
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Arizona Mathematics Standards

2016 Content Emphasis

Algebra 2 Course Content

Course content indicated by: ● major content; ▲ supporting content.

The Real Number System (N-RN)

- Extend the properties of exponents to rational exponents.

Quantities (N-Q)

- ▲ Reason quantitatively and use units to solve problems

The Complex Number System (N-CN)

- ▲ Perform arithmetic operations with complex numbers
- Use complex numbers in polynomial identities and equations

Seeing Structure in Expressions (A-SSE)

- ▲ Interpret the structure of expressions
- ▲ Write expressions in equivalent forms to solve problems

Arithmetic with Polynomials and Rational Expressions (A-APR)

- Understand the relationship between zeros and factors of polynomials
- ▲ Use polynomial identities to solve problems
- ▲ Rewrite rational expressions

Creating Equations (A-CED)

- Create equations that describe numbers or relationships

Reasoning with Equations and Inequalities (A-REI)

- Understand solving equations as a process of reasoning and explain the reasoning
- Solve equations and inequalities in one variable
- ▲ Solve systems of equations
- ▲ Represent and solve equations and inequalities graphically

Interpreting Functions (F-IF)

- Interpret functions that arise in applications in terms of the context
 - Analyze functions using different representations
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Arizona Mathematics Standards

Algebra 2 (cont.)

Building Functions (F-BF)

- Build a function that models a relationship between two quantities
- ▲ Build new functions from existing functions

Linear, Quadratic, and Exponential Models (F-LE)

- Construct and compare linear, quadratic, and exponential models and solve problems
- Interpret expressions for functions in terms of the situation they model.

Trigonometric Functions (F-TF)

- ▲ Extend the domain of trigonometric functions using the unit circle
- Model periodic phenomena with trigonometric functions
- ▲ Apply trigonometric identities

Interpreting Categorical and Quantitative Data (S-ID)

- ▲ Summarize, represent and interpret data on a single count or measurable variable.
- ▲ Summarize, represent and interpret data on two categorical and quantitative variables.
- Interpret models

Making Inferences and Justifying Conclusions (S-IC)

- ▲ Understand and evaluate random processes underlying statistical experiments
- ▲ Make inferences and justify conclusions from sample surveys, experiments and observational studies

Conditional Probability and the Rules of Probability (S-CP)

- Understand independence and conditional probability and use them to interpret data
 - Use the rules of probability to compute probabilities of compound events in a uniform probability model
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Arizona Mathematics Standards

2016 Content Emphasis Geometry Course Content

Course content indicated by: ● major content; ▲ supporting content.

Quantity (N-Q)

- ▲ Reason quantitatively and use units to solve problems.

Congruence (G-CO)

- Experiment with transformations in the plane.
- Understand congruence in terms of rigid motions.
- Prove geometric constructions.
- ▲ Make geometric constructions.

Similarity, Right Triangles, and Trigonometry (G-SRT)

- Understand similarity in terms of similarity transformations.
- Prove theorems using similarity.
- Define trigonometric ratios and solve problems involving right triangles.

Circles (G-C)

- ▲ Understand and apply theorems about circles.
- ▲ Find arc lengths and areas of sectors of circles.

Expressing Geometric Properties with Equations (G-GPE)

- ▲ Translate between the geometric description and the equation of a conic section.
- Use coordinates to prove simple geometric theorems algebraically.

Geometric Measurement and Dimensions (G-GMD)

- Explain volume formulas and use them to solve problems.
- ▲ Visualize relationships between two-dimensional and three-dimensional objects.

Modeling with Geometry (G-MG)

- ▲ Apply geometric concepts in modeling situations.

