

# ACCESS MATH

correlated to

## Arizona Mathematics Standards Articulated by Grade Level Grades 6-8



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# ACCESS Math correlated to Arizona Mathematics Standard Articulated by Grade Level Grade 6

## Strand 1: Number Sense and Operations

Every student should understand and use all concepts and skills from the previous grade levels. The standards are designed so that new learning builds on preceding skills and are needed to learn new skills. Communication, Problem-solving, Reasoning & Proof, Connections, and Representation are the process standards that are embedded throughout the teaching and learning of mathematical strands.

## Concept 1: Number Sense

Understand and apply numbers, ways of representing numbers, the relationships among numbers and different number systems.

Grade 6 Performance Objectives	ACCESS Math
PO 1. Express fractions as ratios, comparing two whole numbers (e.g., $\frac{3}{4}$ is equivalent to 3:4 and 3 to 4).	<b>Teacher's Edition:</b> 104-108
PO 2. Compare two proper fractions, improper fractions, or mixed numbers.	<b>Teacher's Edition:</b> 104-108, 109-113, 114-118
PO 3. Order three or more proper fractions, improper fractions, or mixed numbers.	<b>Teacher's Edition:</b> 114-118
PO 5. Identify the greatest common factor for two whole numbers.	<b>Teacher's Edition:</b> 92-96
PO 6. Determine the least common multiple for two whole numbers.	<b>Teacher's Edition:</b> 97-101
PO 7. Express a whole number as a product of its prime factors, using exponents when appropriate.	<b>Teacher's Edition:</b> 26-30, 87-91

## Concept 2: Numerical Operations

**Understand and apply numerical operations and their relationship to one another.**

Grade 6 Performance Objectives	ACCESS Math
PO 1. Select the grade-level appropriate operation to solve word problems.	<b>Teacher's Edition:</b> 48-52, 53-57
PO 2. Solve word problems using grade-level appropriate operations and numbers.	<b>Teacher's Edition:</b> 48-52, 53-57
PO 3. Apply grade-level appropriate properties to assist in computation.	<b>Teacher's Edition:</b> 32, 53-57
PO 4. Apply the symbols for "...” or “___” to represent repeating decimals and “:” to represent ratios, superscripts as exponents.	<b>Teacher's Edition:</b> 136-140
PO 5. Use grade-level appropriate mathematical terminology.	<b>Teacher's Edition:</b> 16-289
PO 7. Add or subtract proper fractions and mixed numbers with unlike denominators with regrouping.	<b>Teacher's Edition:</b> 119-128
PO 8. Demonstrate the process of multiplication of proper fractions using models.	<b>Teacher's Edition:</b> 129-130
PO 9. Multiply proper fractions.	<b>Teacher's Edition:</b> 129-130
PO 10. Multiply mixed numbers.	<b>Teacher's Edition:</b> 129-130
PO 11. Demonstrate that division is the inverse of multiplication of proper fractions.	<b>Teacher's Edition:</b> 131-133
PO 12. Divide proper fractions.	<b>Teacher's Edition:</b> 131-133
PO 13. Divide mixed numbers.	<b>Teacher's Edition:</b> 131-133
PO 14. Solve problems involving fractions or decimals (including money) in contextual situations.	<b>Teacher's Edition:</b> 60-69, 70-79, 134-135
PO 15. Simplify numerical expressions using the order of operations with grade-appropriate operations on number sets.	<b>Teacher's Edition:</b> 38-39

### Concept 3: Estimation

Use estimation strategies reasonably and fluently.

Grade 6 Performance Objectives	ACCESS Math
PO 3. Round to estimate quantities in contextual situations (e.g., round up or round down).	<b>Teacher's Edition:</b> 22-25, 62-64

### Strand 2: Data Analysis, Probability, and Discrete Mathematics

Every student should understand and use all concepts and skills from the previous grade levels. The standards are designed so that new learning builds on preceding skills and are needed to learn new skills. Communication, Problem-solving, Reasoning & Proof, Connections, and Representation are the process standards that are embedded throughout the teaching and learning of mathematical strands.

### Concept 1: Data Analysis (Statistics)

Understand and apply data collection, organization and representation to analyze and sort data.

Grade 6 Performance Objectives	ACCESS Math
PO 1. Formulate questions to collect data in contextual situations.	<b>Teacher's Edition:</b> 158, 163, 166-167
PO 2. Construct a histogram, line graph, scatter plot, or stem-and-leaf plot with appropriate labels and title from organized data.	<b>Teacher's Edition:</b> 163-172
PO 3. Interpret simple displays of data including double bar graphs, tally charts, frequency tables, circle graphs, and line graphs.	<b>Teacher's Edition:</b> 163-178
PO 4. Answer questions based on simple displays of data including double bar graphs, tally charts, frequency tables, circle graphs, and line graphs.	<b>Teacher's Edition:</b> 163-178
PO 5. Find the mean, median (odd number of data points), mode, range, and extreme values of a given numerical data set.	<b>Teacher's Edition:</b> 165-167
PO 8. Solve contextual problems using bar graphs, tally charts, and frequency tables.	<b>Teacher's Edition:</b> 159-163, 168-169

## Concept 2: Probability

Understand and apply the basic concepts of probability.

Grade 6 Performance Objectives	ACCESS Math
PO 1. Name the possible outcomes for a probability experiment.	<b>Teacher's Edition:</b> 234-235, 238, 240, 241-243
PO 3. Predict the outcome of a grade-level appropriate probability experiment.	<b>Teacher's Edition:</b> 238, 243
PO 4. Record the data from performing a grade-level appropriate probability experiment.	<b>Teacher's Edition:</b> 238, 243
PO 5. Compare the outcome of an experiment to predictions made prior to performing the experiment.	<b>Teacher's Edition:</b> 240, 241-243
PO 6. Make predictions from the results of student-generated experiments using objects (e.g., coins, spinners, number cubes, cards).	<b>Teacher's Edition:</b> 238, 242

## Concept 3: Discrete Mathematics – Systematic Listing and Counting

Understand and demonstrate the systematic listing and counting of possible outcomes.

Grade 6 Performance Objectives	ACCESS Math
PO 1. Determine all possible outcomes involving a combination of three sets of three items, using a systematic approach (e.g., 3 different shirts, 3 different pairs of pants, and 3 different belts).	<b>Teacher's Edition:</b> 251-253
PO 2. Determine all possible arrangements given a set with four or fewer objects using a systematic list, table or tree diagram when order is not important.	<b>Teacher's Edition:</b> 244-245

## Strand 3: Patterns, Algebra and Functions

Every student should understand and use all concepts and skills from the previous grade levels. The standards are designed so that new learning builds on preceding skills and are needed to learn new skills. Communication, Problem-solving, Reasoning & Proof, Connections, and Representation are the process standards that are embedded throughout the teaching and learning of mathematical strands.

### Concept 1: Patterns

Identify patterns and apply pattern recognition to reason mathematically.

Grade 6 Performance Objectives	ACCESS Math
PO 1. Communicate a grade-level appropriate recursive pattern, using symbols or numbers.	Teacher's Edition: 58-59
PO 2. Extend a grade-level appropriate iterative pattern.	Teacher's Edition: 58-59
PO 3. Solve grade-level appropriate iterative pattern problems.	Teacher's Edition: 58-59

### Concept 3: Algebraic Representations

Represent and analyze mathematical situations and structures using algebraic representations.

Grade 6 Performance Objectives	ACCESS Math
PO 2. Use variables in contextual situations.	Teacher's Edition: 40-42, 43-47, 48-52, 53-57
PO 3. Translate a written phrase to an algebraic expression (e.g., The quotient of $m$ and 5 is $\frac{m}{5}$ or $m \div 5$ ).	Teacher's Edition: 43-47, 53-57
PO 4. Translate a phrase written in context into an algebraic expression (e.g., Write an expression to describe the situation: John has $x$ pieces of candy and buys three more. $x + 3$ ).	Teacher's Edition: 43-47, 53-57
PO 5. Solve one-step equations with one variable represented by a letter or symbol, using inverse operations with whole numbers.	Teacher's Edition: 48-52, 53-57, 278-279

## Strand 4: Geometry and Measurement

Every student should understand and use all concepts and skills from the previous grade levels. The standards are designed so that new learning builds on preceding skills and are needed to learn new skills. **Communication, Problem-solving, Reasoning & Proof, Connections, and Representation** are the process standards that are embedded throughout the teaching and learning of mathematical strands.

### Concept 1: Geometric Properties

Analyze the attributes and properties of 2- and 3- dimensional shapes and develop mathematical arguments about their relationships.

Grade 6 Performance Objectives	ACCESS Math
PO 1. Classify polygons by their attributes (e.g., number of sides, length of sides, angles, parallelism, perpendicularity).	<b>Teacher's Edition:</b> 187-189, 190-194
PO 2. Draw a geometric figure showing specified properties, such as parallelism and perpendicularity.	<b>Teacher's Edition:</b> 200-204
PO 3. Classify prisms, pyramids, cones, and cylinders by base shape and lateral surface shape.	<b>Teacher's Edition:</b> 222-226
PO 4. Classify 3-dimensional figures by their attributes.	<b>Teacher's Edition:</b> 222-226, 227-231
PO 5. Compare attributes of 2-dimensional figures with 3-dimensional figures.	<b>Teacher's Edition:</b> 222-226, 227-231
PO 6. Draw triangles with appropriate labels.	<b>Teacher's Edition:</b> 187-189
PO 7. Identify supplementary or complementary angles.	<b>Teacher's Edition:</b> 182-186
PO 8. Identify the diameter, radius, and circumference of a circle or sphere.	<b>Teacher's Edition:</b> 217-221
PO 9. Draw a 2-dimensional shape with a given number of lines of symmetry.	<b>Teacher's Edition:</b> 200-204

## Concept 2: Transformation of Shapes

Apply spatial reasoning to create transformations and use symmetry to analyze mathematical situations.

Grade 6 Performance Objectives	ACCESS Math
PO 1. Identify reflections and translations using pictures.	<b>Teacher's Edition:</b> 206-209
PO 2. Perform elementary transformations to create a tessellation.	<b>Teacher's Edition:</b> 206-209

## Concept 3: Coordinate Geometry

Specify and describe spatial relationships using coordinate geometry and other representational systems.

Grade 6 Performance Objectives	ACCESS Math
PO 2. State the missing coordinate of a given figure in the first quadrant of a coordinate grid using geometric properties (e.g., Find the coordinates of the missing vertex of a rectangle when two adjacent sides are drawn.).	<b>Teacher's Edition:</b> 271-272

## Concept 4: Measurement-Units of Measure -Geometric Objects

Understand and apply appropriate units of measure, measurement techniques, and formulas to determine measurements.

Grade 6 Performance Objectives	ACCESS Math
PO 4. Measure angles using a protractor.	<b>Teacher's Edition:</b> 182-183
PO 6. Solve problems involving the perimeter of polygons.	<b>Teacher's Edition:</b> 212-213, 215-216
PO 7. Determine the area of triangles.	<b>Teacher's Edition:</b> 214-215
PO 8. Distinguish between perimeter and area in contextual situation.	<b>Teacher's Edition:</b> 212-216
PO 9. Solve problems for the areas of parallelograms (includes rectangles).	<b>Teacher's Edition:</b> 214-216
PO 10. Identify parallelograms having the same perimeter or area.	<b>Teacher's Edition:</b> 195-196



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# ACCESS Math

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## Arizona Mathematics Standard Articulated by Grade Level

### Grade 7

### Strand 1: Number Sense and Operations

Every student should understand and use all concepts and skills from the previous grade levels. The standards are designed so that new learning builds on preceding skills and are needed to learn new skills. Communication, Problem-solving, Reasoning & Proof, Connections, and Representation are the process standards that are embedded throughout the teaching and learning of mathematical strands.

### Concept 1: Number Sense

Understand and apply numbers, ways of representing numbers, the relationships among numbers and different number systems.

Grade 7 Performance Objectives	ACCESS Math
PO 2. Identify the greatest common factor for a set of whole numbers.	Teacher's Edition: 92-96
PO 3. Determine the least common multiple for a set of whole numbers.	Teacher's Edition: 97-101
PO 6. Locate integers on a number line.	Teacher's Edition: 18-20, 23-24, 256-260
PO 7. Order integers.	Teacher's Edition: 18-20, 23-24, 257-260

### Concept 2: Numerical Operations

Understand and apply numerical operations and their relationship to one another.

Grade 7 Performance Objectives	ACCESS Math
PO 1. Add integers.	Teacher's Edition: 261-265
PO 2. Subtract integers.	Teacher's Edition: 261-265
PO 3. Select the grade-level appropriate operation to solve word problems.	Teacher's Edition: 48-52, 53-57

<b>Grade 7 Performance Objectives</b>	<b>ACCESS Math</b>
PO 4. Solve word problems using grade-level appropriate operations and numbers.	<b>Teacher's Edition:</b> 48-52, 53-57
PO 5. Multiply integers.	<b>Teacher's Edition:</b> 266-270
PO 6. Divide integers.	<b>Teacher's Edition:</b> 266-270
PO 7. Apply grade-level appropriate properties to assist in computation.	<b>Teacher's Edition:</b> 32, 53-57
PO 8. Apply the symbols + and – to represent positive and negative, and “__” to represent absolute value.	<b>Teacher's Edition:</b> 256-272
PO 9. Use grade-level appropriate mathematical terminology.	<b>Teacher's Edition:</b> 16-289
PO 10. Calculate the percent of a given number.	<b>Teacher's Edition:</b> 1461-50, 151-155
PO 11. Convert numbers expressed in standard notation to scientific notation and vice versa (positive exponents only).	<b>Teacher's Edition:</b> 26-30
PO 12. Simplify numerical expressions using the order of operations with grade- appropriate operations on number sets.	<b>Teacher's Edition:</b> 38-39

## Strand 2: Data Analysis, Probability, and Discrete Mathematics

Every student should understand and use all concepts and skills from the previous grade levels. The standards are designed so that new learning builds on preceding skills and are needed to learn new skills. **Communication, Problem-solving, Reasoning & Proof, Connections, and Representation** are the process standards that are embedded throughout the teaching and learning of mathematical strands.

### Concept 1: Data Analysis (Statistics)

Understand and apply data collection, organization and representation to analyze and sort data.

<b>Grade 7 Performance Objectives</b>	<b>ACCESS Math</b>
PO 1. Formulate questions to collect data in contextual situations.	<b>Teacher's Edition:</b> 158, 163, 166-167

<b>Grade 7 Performance Objectives</b>	<b>ACCESS Math</b>
PO 3. Determine when it is appropriate to use histograms, line graphs, double bar graphs, and stem-and-leaf plots.	<b>Teacher's Edition:</b> 163-178
PO 4. Interpret data displays including histograms, stem-and-leaf plots, circle graphs, and double line graphs.	<b>Teacher's Edition:</b> 163-178
PO 5. Answer questions based on data displays including histograms, stem-and-leaf plots, circle graphs, and double line graphs.	<b>Teacher's Edition:</b> 163-178
PO 6. Find the mean, median, mode, and range of a given numerical data set.	<b>Teacher's Edition:</b> 165-167
PO 9. Solve contextual problems using histograms, line graphs of continuous data, double bar graphs, and stem-and-leaf plots.	<b>Teacher's Edition:</b> 163-178

## Concept 2: Probability

**Understand and apply the basic concepts of probability.**

<b>Grade 7 Performance Objectives</b>	<b>ACCESS Math</b>
PO 1. Determine the probability that a specific event will occur in a single stage probability experiment (e.g., Find the probability of drawing a red marble from a bag with 3 red, 5 blue, and 9 black marbles.).	<b>Teacher's Edition:</b> 234-235, 238, 240, 241-243
PO 3. Predict the outcome of a grade-level appropriate probability experiment.	<b>Teacher's Edition:</b> 238, 243
PO 4. Record the data from performing a grade-level appropriate probability experiment.	<b>Teacher's Edition:</b> 238, 243
PO 5. Compare the outcome of an experiment to predictions made prior to performing the experiment.	<b>Teacher's Edition:</b> 238, 243
PO 6. Make predictions from the results of student-generated experiments using objects (e.g., coins, spinners, number cubes, cards).	<b>Teacher's Edition:</b> 242, 243

### Concept 3: Discrete Mathematics – Systematic Listing and Counting

Understand and demonstrate the systematic listing and counting of possible outcomes.

Grade 7 Performance Objectives	ACCESS Math
PO 1. Determine all possible outcomes involving the combination of up to three sets of objects (e.g., How many outfits can be made with 3 pants, 2 tee shirts and 2 pairs of shoes?).	<b>Teacher's Edition:</b> 251-253
PO 2. Determine all possible arrangements of a given set, using a systematic list, table, tree diagram, or other representation.	<b>Teacher's Edition:</b> 244-245

### Strand 3: Patterns, Algebra and Functions

Every student should understand and use all concepts and skills from the previous grade levels. The standards are designed so that new learning builds on preceding skills and are needed to learn new skills. **Communication, Problem-solving, Reasoning & Proof, Connections, and Representation** are the process standards that are embedded throughout the teaching and learning of mathematical strands.

#### Concept 1: Patterns

Identify patterns and apply pattern recognition to reason mathematically.

Grade 7 Performance Objectives	ACCESS Math
PO 1. Communicate a grade-level appropriate recursive pattern, using symbols or numbers.	<b>Teacher's Edition:</b> 58-59

#### Concept 3: Algebraic Representations

Represent and analyze mathematical situations and structures using algebraic representations.

Grade 7 Performance Objectives	ACCESS Math
PO 2. Use variables in contextual situations.	<b>Teacher's Edition:</b> 40-42, 43-47, 48-52, 53-57
PO 3. Translate a written sentence into a one-step, one-variable algebraic equation.	<b>Teacher's Edition:</b> 53-57, 276-277
PO 4. Translate a sentence written in context into an algebraic equation involving one operation.	<b>Teacher's Edition:</b> 48-52, 53-57, 276-277
PO 5. Solve one-step equations using inverse operations with positive rational numbers (e.g., $\frac{2}{3}n = 6$ ).	<b>Teacher's Edition:</b> 278-279

## Strand 4: Geometry and Measurement

Every student should understand and use all concepts and skills from the previous grade levels. The standards are designed so that new learning builds on preceding skills and are needed to learn new skills. **Communication, Problem-solving, Reasoning & Proof, Connections, and Representation** are the process standards that are embedded throughout the teaching and learning of mathematical strands.

### Concept 1: Geometric Properties

Analyze the attributes and properties of 2- and 3- dimensional shapes and develop mathematical arguments about their relationships.

Grade 7 Performance Objectives	ACCESS Math
PO 1. Draw a geometric figure showing specified properties (e.g., Draw an obtuse triangle.).	<b>Teacher's Edition:</b> 189, 193, 199
PO 2. Classify 3-dimensional solids by their configuration and properties (e.g., parallelism, perpendicularity and congruency).	<b>Teacher's Edition:</b> 222-226, 227-231
PO 3. Identify the net (2-dimensional representation) that corresponds to a rectangular prism, cone, or cylinder.	<b>Teacher's Edition:</b> 222-226, 227-231
PO 4. Distinguish between length, area, and volume, using 2- and 3-dimensional geometric figures.	<b>Teacher's Edition:</b> 212-216, 222-226, 227-231
PO 5. Draw polygons with appropriate labels.	<b>Teacher's Edition:</b> 189, 193
PO 6. Identify the angles created by two lines and a transversal.	<b>Teacher's Edition:</b> 182-184
PO 10. Identify corresponding parts of congruent polygons as congruent.	<b>Teacher's Edition:</b> 196

### Concept 2: Transformation of Shapes

Apply spatial reasoning to create transformations and use symmetry to analyze mathematical situations.

Grade 7 Performance Objectives	ACCESS Math
PO 2. Recognize simple single rotations, translations or reflections on a coordinate grid.	<b>Teacher's Edition:</b> 205-209

### Concept 3: Coordinate Geometry

Specify and describe spatial relationships using coordinate geometry and other representational systems.

Grade 7 Performance Objectives	ACCESS Math
PO 1. Graph data points in (x, y) form in any quadrant of a coordinate grid.	<b>Teacher's Edition:</b> 271-272
PO 2. State the missing coordinate of a given figure in any quadrant of a coordinate grid using geometric properties (e.g., Find the coordinates of the missing vertex of a rectangle when two adjacent sides are drawn.).	<b>Teacher's Edition:</b> 271-272

### Concept 4: Measurement-Units of Measure - Geometric Objects

Understand and apply appropriate units of measure, measurement techniques, and formulas to determine measurements.

Grade 7 Performance Objectives	ACCESS Math
PO 4. Solve problems involving the circumference of a circle.	<b>Teacher's Edition:</b> 217-218, 220
PO 5. Solve problems involving the area of a circle.	<b>Teacher's Edition:</b> 219-220
PO 6. Solve problems for the areas of parallelograms, triangles, and circles.	<b>Teacher's Edition:</b> 212, 214-216, 219-221
PO 7. Identify polygons having the same perimeter or area.	<b>Teacher's Edition:</b> 200-204



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# ACCESS Math

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## Arizona Mathematics Standard Articulated by Grade Level

### Grade 8

### Strand 1: Number Sense and Operations

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### Concept 1: Number Sense

Understand and apply numbers, ways of representing numbers, the relationships among numbers and different number systems.

Grade 8 Performance Objectives	ACCESS Math
PO 1. Locate rational numbers on a number line.	<b>Teacher's Edition:</b> 18-20, 23-24

### Concept 2: Numerical Operations

Understand and apply numerical operations and their relationship to one another.

Grade 8 Performance Objectives	ACCESS Math
PO 1. Select the grade-level appropriate operation to solve word problems.	<b>Teacher's Edition:</b> 48-52, 53-57
PO 2. Solve word problems using grade-level appropriate operations and numbers.	<b>Teacher's Edition:</b> 48-52, 53-57
PO 6. Apply grade-level appropriate properties to assist in computation.	<b>Teacher's Edition:</b> 32, 53-57
PO 8. Use grade-level appropriate mathematical terminology.	<b>Teacher's Edition:</b> 16-289
PO 9. Calculate the missing value in a percentage problem.	<b>Teacher's Edition:</b> 141-150, 151-155

<b>Grade 8 Performance Objectives</b>	<b>ACCESS Math</b>
PO 10. Convert standard notation to scientific notation, and vice versa.	<b>Teacher's Edition:</b> 26-30
PO 11. Simplify numerical expressions using the order of operations with grade- appropriate operations on number sets.	<b>Teacher's Edition:</b> 38-39

## Strand 2: Data Analysis, Probability, and Discrete Mathematics

Every student should understand and use all concepts and skills from the previous grade levels. The standards are designed so that new learning builds on preceding skills and are needed to learn new skills. **Communication, Problem-solving, Reasoning & Proof, Connections, and Representation** are the process standards that are embedded throughout the teaching and learning of mathematical strands.

### Concept 1: Data Analysis (Statistics)

Understand and apply data collection, organization and representation to analyze and sort data.

<b>Grade 8 Performance Objectives</b>	<b>ACCESS Math</b>
PO 1. Formulate questions to collect data in contextual situations.	<b>Teacher's Edition:</b> 158, 163, 166-167
PO 3. Determine the appropriate type of graphical display for a given data set.	<b>Teacher's Edition:</b> 163-178
PO 6. Solve problems in contextual situations using the mean, median, mode, and range of a given data set.	<b>Teacher's Edition:</b> 165-167
PO 9. Solve contextual problems using scatter plots, box-and-whiskers plots, and double line graphs of continuous data.	<b>Teacher's Edition:</b> 174

### Concept 2: Probability

Understand and apply the basic concepts of probability.

<b>Grade 8 Performance Objectives</b>	<b>ACCESS Math</b>
PO 1. Determine the probability that a specific event will occur in a 2-stage probability experiment.	<b>Teacher's Edition:</b> 234-235, 238
PO 2. Solve contextual situations using probability (e.g., If the probability of Michelle making a free throw is 0.25, what is the probability that she will make three free throws in a row?).	<b>Teacher's Edition:</b> 240

<b>Grade 8 Performance Objectives</b>	<b>ACCESS Math</b>
PO 3. Predict the outcome of a grade-level appropriate probability experiment.	<b>Teacher's Edition:</b> 241-243
PO 4. Record the data from performing a grade-level appropriate probability experiment.	<b>Teacher's Edition:</b> 241-243
PO 5. Compare the outcome of an experiment to predictions made prior to performing the experiment.	<b>Teacher's Edition:</b> 243

**Concept 3: Discrete Mathematics – Systematic Listing and Counting**  
**Understand and demonstrate the systematic listing and counting of possible outcomes.**

<b>Grade 8 Performance Objectives</b>	<b>ACCESS Math</b>
PO 1. Determine all possible outcomes involving the combination of two or more sets of objects (e.g., If you roll a six-sided number cube 4 times, how many possible outcomes are possible?).	<b>Teacher's Edition:</b> 244, 247-248
PO 2. Determine all possible arrangements given a set (e.g., How many ways can you arrange a set of 7 books on a shelf?).	<b>Teacher's Edition:</b> 249, 252, 253

**Strand 3: Patterns, Algebra and Functions**

Every student should understand and use all concepts and skills from the previous grade levels. The standards are designed so that new learning builds on preceding skills and are needed to learn new skills. **Communication, Problem-solving, Reasoning & Proof, Connections, and Representation** are the process standards that are embedded throughout the teaching and learning of mathematical strands.

**Concept 1: Patterns**

**Identify patterns and apply pattern recognition to reason mathematically.**

<b>Grade 8 Performance Objectives</b>	<b>ACCESS Math</b>
PO 1. Communicate a grade-level appropriate iterative or recursive pattern, using symbols or numbers.	<b>Teacher's Edition:</b> 58-59
PO 2. Extend a grade-level appropriate iterative or recursive pattern.	<b>Teacher's Edition:</b> 58-59
PO 3. Solve grade-level appropriate iterative or recursive pattern problems.	<b>Teacher's Edition:</b> 58-59

### Concept 3: Algebraic Representations

Represent and analyze mathematical situations and structures using algebraic representations.

Grade 8 Performance Objectives	ACCESS Math
PO 2. Use variables in contextual situations.	<b>Teacher's Edition:</b> 40-42, 43-47, 48-52, 53-57
PO 3. Translate a written sentence or phrase into an algebraic equation or expression, and vice versa (e.g., Three less than twice a number is $2n-3$ ).	<b>Teacher's Edition:</b> 43-47, 53-57, 276-277
PO 4. Translate a sentence written in context into an algebraic equation involving two operations.	<b>Teacher's Edition:</b> 280-282
PO 5. Translate a contextual situation into an algebraic inequality (e.g., Joe earns more than \$5.00 an hour; therefore, $x > 5$ ).	<b>Teacher's Edition:</b> 283-287
PO 6. Identify an equation or inequality that represents a contextual situation.	<b>Teacher's Edition:</b> 43-47, 48-52, 53-57, 278-279, 280-282, 283-287
PO 7. Solve one-step equations with rational numbers as coefficients or as solutions.	<b>Teacher's Edition:</b> 43-47, 48-52, 53-57, 278-279
PO 8. Solve one-step equations that model contextual situations.	<b>Teacher's Edition:</b> 43-47, 48-52, 53-57, 278-279
PO 9. Solve two-step equations with rational coefficients and integer solutions (e.g., $3x + 5 = 11$ , $4x - 20 = 8$ ).	<b>Teacher's Edition:</b> 280-282
PO 10. Graph an inequality on a number line.	<b>Teacher's Edition:</b> 284, 286-287

## Strand 4: Geometry and Measurement

Every student should understand and use all concepts and skills from the previous grade levels. The standards are designed so that new learning builds on preceding skills and are needed to learn new skills. **Communication, Problem-solving, Reasoning & Proof, Connections, and Representation** are the process standards that are embedded throughout the teaching and learning of mathematical strands.

### Concept 1: Geometric Properties

Analyze the attributes and properties of 2- and 3- dimensional shapes and develop mathematical arguments about their relationships.

Grade 8 Performance Objectives	ACCESS Math
PO 2. Draw 3-dimensional figures by applying properties of each (e.g., parallelism, perpendicularity, congruency).	<b>Teacher's Edition:</b> 225, 231
PO 3. Recognize the 3-dimensional figure represented by a net.	<b>Teacher's Edition:</b> 222-226, 227-231
PO 4. Represent the surface area of rectangular prisms and cylinders as the area of their net.	<b>Teacher's Edition:</b> 222-226
PO 5. Draw regular polygons with appropriate labels.	<b>Teacher's Edition:</b> 193
PO 6. Identify the properties of angles created by a transversal intersecting two parallel lines (e.g., corresponding angles are congruent).	<b>Teacher's Edition:</b> 182-184, 185-186
PO 9. Determine whether three given lengths can form a triangle.	<b>Teacher's Edition:</b> 187-189
PO 10. Identify corresponding angles of similar polygons as congruent and sides as proportional.	<b>Teacher's Edition:</b> 195-196

### Concept 2: Transformation of Shapes

Apply spatial reasoning to create transformations and use symmetry to analyze mathematical situations.

Grade 8 Performance Objectives	ACCESS Math
PO 1. Identify the planar geometric figure that is the result of a given rigid transformation.	<b>Teacher's Edition:</b> 205, 208-209
PO 2. Model a simple transformation on a coordinate grid (e.g., Translate right four units and down two units.).	<b>Teacher's Edition:</b> 209

### Concept 3: Coordinate Geometry

Specify and describe spatial relationships using coordinate geometry and other representational systems.

Grade 8 Performance Objectives	ACCESS Math
PO 1. Use a table of values to graph a linear equation.	<b>Teacher's Edition:</b> 273-275
PO 2. Determine the midpoint given two points on a number line.	<b>Teacher's Edition:</b> 271-272
PO 3. Determine the distance between two points on a number line.	<b>Teacher's Edition:</b> 271-272

### Concept 4: Measurement-Units of Measure -Geometric Objects

Understand and apply appropriate units of measure, measurement techniques, and formulas to determine measurements.

Grade 8 Performance Objectives	ACCESS Math
PO 1. Solve problems for the area of a trapezoid.	<b>Teacher's Edition:</b> 214
PO 2. Solve problems involving the volume of rectangular prisms and cylinders.	<b>Teacher's Edition:</b> 227-231
PO 3. Calculate the surface area of rectangular prisms or cylinders.	<b>Teacher's Edition:</b> 222-226
PO 4. Identify rectangular prisms and cylinders having the same volume.	<b>Teacher's Edition:</b> 222-226
PO 5. Find the measure of a missing interior angle in a triangle or quadrilateral.	<b>Teacher's Edition:</b> 182-184, 185-189
PO 7. Calculate the length of a side, given two similar triangles.	<b>Teacher's Edition:</b> 187-189



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