

Mathematics Exit Goals by Grade Levels

Kindergarten

Problem Solving and Number Sense (State Goal 6) (Olympia 1, 4, 6)

Number Sense for Whole Numbers:

Count on/back one, two, or three numbers when given a random number
Model, read, compare, and order numbers through twelve
Count by 1s, 5s, and 10s to 30 or beyond
Count objects with one-to-one correspondence to 20
Recognize numbers to 31
Form numbers 0 – 9 correctly

Problem Solving:

Understand positional words
Recognize similarities/differences between objects or sets
Sort objects logically and explain sorting rule
Model and solve oral addition/subtraction problems with counters

Measurement (State Goal 7) (Olympia 3, 4, 8)

Measurement Skills:

Use non-standard units to measure and compare length, weight, capacity
Appropriate vocabulary (see list)

Time/Money Skills:

Tell time to hour
Distinguish penny, nickel, dime
Count money amounts using pennies to 20 cents

Estimation Skills:

Compare estimated measures to actual measures using non-standard units
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Calendar Skills:

Name of days of the week sequentially
Name months of year and begin to associate months with seasons

Algebra Readiness (State Goal 8) (Olympia 1, 9)

Patterning:

Identify, copy, extend, compare, and create 2 and 3 part patterns with objects
Classify by color, size, shape, or a detail
Begin to recognize the configuration of 1-10 objects in a 10 frame

Geometry (State Goal 9) (Olympia 1, 3, 7)

Spatial Sense:

Identify, sort, and describe characteristics of circle, rectangle, square, triangle, and oval
Give examples of where these shapes are found

Logical Reasoning:

Compare pairs of shapes, telling how they are alike/different

Graphs (State Goal 10) (Olympia 1, 2)

Graphing Skills:

Interpret tally, bar, and real graphs
Suggest appropriate titles/labels
Analyze graphs (more/less, most/fewest...)
Use counters to make a simple bar graph

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First Grade

Number Operation and Computation Sense (State Goal 6) (Olympia 1, 4, 6)

Number Sense for Whole Numbers and Fractions:

Count on/back 1, 2, or 3 numbers when given a random number
Count by 10s, 5s, 2s, 1s to 100
Count objects with one-to-one correspondence to 100
Read, write, model, identify place value, through 100
Compare and order numbers through 100
Identify one half, one third, and one fourth of an object

Operation Sense:

Know whether to + or - to solve part-whole and compare problems
Solve + and - problems involving 1- and 2-digit numbers using concrete materials
Use 10s and 1s model or 100 Chart to solve problems with 2-digit numbers (rather than regrouping)
Explain orally or write sentences to describe problem solutions
Create a problem for a given sentence
Construct a number sentence to match word problems
Explain solution approaches orally or in writing

Computation Sense involving Whole Numbers:

Know easy addition and subtraction facts such as count ons/back, zeros, doubles, and ten sums

Measurement (State Goal 7) (Olympia 3, 4, 8)

Measurement Skills:

Measure length in customary units to nearest inch and centimeter
Recognize that a scale is a tool for measuring weight
Recognize that a thermometer is a tool for measuring temperature

Time/Money Skills:

Tell time to the hour and half-hour (analog and digital)
State the name and value of the penny, nickel, dime, and quarter
Count money amounts to 55 cents using mixed coins

Estimation Skills:

Compare estimated measures to actual measures taken with appropriate measuring instruments
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Algebra Readiness (State Goal 8) (Olympia 1, 9)

Patterning:

Recognize, create, analyze, compare, and extend counting and geometric patterns
Recognize the configuration of 1 - 10 stars in a 10-frame
Identify whole numbers as even or odd with an explanation of reasoning using concrete materials

Geometry (State Goal 9) (Olympia 1, 3, 7)

Spatial Sense:

Identify, describe characteristics, and draw circles, rectangles, squares, ovals, and triangles
Begin to recognize solid shapes - cube, cone, cylinder, pyramid, sphere, rectangular prism
Give examples of where these shapes are found

Logical Reasoning:

Describe similarities and differences between pairs of 2-and 3-dimensional shapes on the basis of their characteristics
Identify lines of symmetry in simple figures
Construct symmetrical figures using various concrete materials
Draw logical conclusions based on properties of shapes
Communicate reasoning about simple geometric figures and patterns

Data Sense (State Goal 10) (Olympia 1, 2)

Statistics:

Collect, organize, display, analyze and interpret data using pictures, tallies, charts, and bar graphs
Formulate questions, make predictions and decisions based on data
Communicate reasoning

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Second Grade

Number Operation and Computation Sense (State Goal 6) (Olympia 1, 4, 6)

Number Sense for Whole Numbers and Fractions:

Count by 25s, 10s, 5s, and 2s
Count on by 1s, 5s, 10s
Count back by 1s, 5s, 10s
Model, read, write identify place value for whole numbers though 1000
Write fractions found in real-life situations for regions or groups/sets

Operation Sense:

Know to add or subtract to solve part-whole and compare +/- problems
Write number sentences to describe problem solutions
Create problems for given sentences
Explain solution approaches orally and in writing

Computation Sense involving Whole Numbers:

Know addition and subtraction facts through 18
Mentally add or subtract 2-digit numbers using a 100 chart
Add and subtract 2 digit numbers with and without regrouping
Begin multiplication facts 1s, 2s, 5s, and 10s
Explore multiplication and division (with and without remainders)through equal grouping of objects, sharing, or repeated addition and repeated subtraction

Measurement (State Goal 7) (Olympia 3, 4, 8)

Measurement Skills:

Begin to explore perimeter and area
Measure capacity in liters, cups, pints, quarts and gallons
Measure length to the nearest centimeter, inch, and foot
Use balance scale to measure weight/mass in pounds/grams
Recognize that there are two units of measure for temperature (Celsius and Fahrenheit)

Time and Money Skills:

Tell time in five-minute intervals (analog and digital)
Count money amounts to \$1.00 using U.S. coins
Count dollars and coins to \$6.00

Estimation Skills:

Compare estimated measures to actual measures

Algebra Readiness (State Goal 8) (Olympia 1, 9)

Patterning:

Recognize, create, analyze, compare, and extend counting and geometric patterns
Identify whole numbers as even or odd with an explanation of reasoning
Solve word problems involving unknown quantities

Geometry (State Goal 9) (Olympia 1, 3, 7)

Spatial Sense:

Identify, sort, classify, describe polygons with 3, 4, 5, 6, and 8 sides
Identify and describe 3-dimensional shapes (explore faces, edges, and vertices)
Give examples where shapes are found

Logical Reasoning:

Describe similarities and differences between pairs of 2- or 3- dimensional shapes based on characteristics
Identify and explain congruent and similar figures
Identify and construct lines of symmetry
Draw logical conclusions based on properties of shapes and patterns

Data Sense and Probability (State Goal 10) (Olympia 1, 2, 5)

Graphing:

Collect, organize, display, analyze and interpret data using pictures, tallies, tables, pictographs and bar graphs
Formulate questions, make predictions and decisions based on data
Identify and use several representations of the same data
Communicate reasoning

Probability:

List all possible outcomes of a simple one-stage experiment
Find experimental probabilities of simple events

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Third Grade

Number Operation and Computation Sense (State Goal 6) (Olympia 1, 4, 6)

Number Sense for Whole Numbers and Fractions:

Show, read, write, identify place value whole numbers through 100,000 in standard and expanded form
Compare/order using $>$, $<$, $=$, \neq
Round to nearest 10, 100, 1000, and dollar
Model and write fractions for equal-size parts of a region or set/group
Compare fractions using models

Operation Sense involving all four operations with Whole Numbers:

Know whether to add, subtract, multiply, or divide when solving 1- and multi-step problems (using smaller numbers)
Use models to check problem solutions
Write number sentences to describe problem solutions
Create problems for a given number sentences
Explain solution approach orally and in writing

Computation Sense involving Whole Numbers:

Demonstrate fluency with addition and subtraction facts
Know multiplication and division facts
Mentally estimate the sum/differences of 2-digit numbers
Add/subtract 3-digit numbers with and without regrouping
Use a 4-function calculator for problem solving involving all four operations and "large" numbers
Select appropriate method for solving problems (i.e. pencil/paper, technology, mental math, or estimation)
Estimate to check for reasonableness of results

Measurement (State Goal 7) (Olympia 3, 4, 8)

Measurement Skills:

Select appropriate units for measuring different attributes of objects
Use a balance scale to measure weight in grams, kilograms, pounds, ounces
Measure length to nearest $\frac{1}{2}$ inch
Measure/compare capacity in liters, cups, pints, quarts, gallons
Read a thermometer in Fahrenheit and Celsius
Calculate perimeters using a model/picture
Calculate/compare areas and perimeters of rectangles and squares
Draw shapes for given perimeters
Draw rectangles and squares for given areas

Time/Money Skills:

Tell time to the nearest minute (analog and digital)
Determine elapsed time between events (5 minute intervals)
Begins to count up from cost to check change received for amounts to \$1.00
Solve "money" problems for amounts to \$1.00 with/without calculator

Estimation Skills:

Approximate lengths and check by measuring (customary and metric)

Algebra Readiness (State Goal 8) (Olympia 1, 9)

Patterning:

Recognize, create, analyze, compare, and extend geometric and numeric patterns
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Numbering Properties:

Represent the idea of a variable as an unknown quantity (i.e. $2n=10$)

Explain computations using number properties (commutative, associative, zero)

Geometry (State Goal 9) (Olympia 1, 3, 7)

Spatial Sense:

Build physical models of 3-dimensional shapes from nets

Predict and describe the results of translations, rotations, reflections on 2 dimensional shapes
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Specify location using a coordinate system
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Identify and describe geometric figures in the world
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Identify, sort, classify, describe, and draw polygons with 3,4,5,6,8 sides and 3D shapes
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Logical Reasoning:

Compare/contrast faces, edges, vertices of simple solids
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Compare/contrast figures on the basis of their properties including parallel, congruence, line symmetry, right angles,
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Draw lines of symmetry

Draw logical conclusions based on properties of shapes and communicate reasoning about simple geometric figures and patterns
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Statistic and Probability (State Goal 10) (Olympia 1, 2, 5)

Statistics:

Collect, organize, display, analyze, interpret data using pictures, tallies, tables, pictographs, bar, coordinate, or line graphs

Use multiple representation of the same data
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Formulate questions, predictions, and decisions based on data and communicate reasoning

Probability:

List all possible outcomes of simple 1-stage chance situations
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Compare likelihood of events in terms of certain, more likely, equally likely, or impossible
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Find, interpret experimental probabilities through simulations/activities

Assign probabilities (chance) of an event happening (i.e. 1 out of 4, $\frac{1}{4}$)

Make predictions/decisions based on probabilities, communicate reasoning
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Fourth Grade

Number Operation and Computation Sense (State Goal 6) (Olympia 1, 4, 6)

Number Sense for Whole Numbers and Fractions

Read, write, order and round whole numbers through 100,000,000 in standard and expanded form
Model and represent equivalent fractions, improper fractions, mixed numbers, and decimals to hundredths
Describe classes of numbers according to characteristics such as factors or multiples
Compare fractions and decimals using models

Operation Sense involving all four operations with Whole Numbers:

Select appropriate operation and method when solving 1- and multi-step problems
Solve teacher and student-generated word problems for all four operations
Write number sentences to describe problem solutions
Create problems for given number sentences
Explain solution approach orally and in writing

Computation Sense involving Whole Numbers, Decimals, and Fractions:

Demonstrate fluency with addition, subtraction, multiplication, division facts
Use mental math on appropriate problems using a variety of strategies
Add/subtract whole numbers with fluency
Multiply whole numbers by a 2-digit factor
Divide whole numbers by a 1-digit divisor
Add/subtract decimals to hundredths
Add/subtract fractions with like denominators
Estimate reasonableness of results

Measurement (State Goal 7) (Olympia 3, 4, 8)

Measurement Skills:

Recognize appropriate units for measuring different attributes of objects
Know basic equivalencies of common measurements (customary, metric)
Measure length to nearest $\frac{1}{4}$ inch, $\frac{1}{2}$ centimeter
Calculate/compare perimeters and areas of shapes using model/pictures
Draw rectangles/squares for given perimeters and areas

Time/Money Skills:

Calculate elapsed times, including a.m. and p.m.
Calculate time differences across time zones
Count up from cost to check change received for amounts to \$5.00
Solve "money" problems

Estimation Skills:

Approximate and check length in customary and metric systems
Estimate conversions between measures within customary and metric

Algebra Readiness (State Goal 8) (Olympia 1, 9)

Patterning:

Recognize, create, analyze, compare, and extend geometric/numeric patterns
Demonstrate in simple situations how a change in one quantity results in a change of another quantity (i.e. increase the measure of the side of a square and the perimeter increases)
Describe a pattern with one operation verbally, symbolically, and with graphs given a table of input/output numbers
Record geometric patterns numerically

Number Properties:

Construct and solve simple number sentences using a symbol for variable
Explain computations using number properties (i.e. commutative, associative, zero, and distributive)

Geometry (State Goal 9) (Olympia 1, 3, 7)

Spatial Sense:

Build physical models of 3-dimensional shapes from nets
Identify, describe, compare, analyze, draw 2- and 3-dimensional shapes
Predict, describe the results of translations, rotations, and reflections on 2 dimensional shapes
Identify, draw, compare regular and irregular convex and concave polygons
Give examples of where geometric shapes are found

Logical Reasoning:

Compare geometric figures on the basis of their properties including parallel, perpendicular, similar, congruence, line symmetry, angle type
Use properties of shapes to analyze a problem/solution orally/in writing

Statistics and Probability (State Goal 10) (Olympia 1, 2, 5)

Statistics:

Collect, organize, display, interpret data using pictures, tallies, tables, pictographs, bar, coordinate, line graphs, line plots, stem and leaf plots
Calculate and analyze data using the mean, mode, median and range of a data set with/without technology
Compare different representations of the same data and evaluate how well each representation shows important aspects of the data
Formulate questions, make predictions/decisions based on data and communicate reasoning

Probability:

List all possible outcomes of 1- and 2-stage chance situations
Compare likelihood of events in terms of certain, more likely, equally likely, or impossible
Find/interpret experimental probabilities through simulations/activities
Describe the chance of an equally (i.e. 1 out of 4, $\frac{1}{4}$)
Make predictions/decisions based on probabilities and communicate reasoning

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Fifth Grade

Number Operation and Computation Sense (State Goal 6) (Olympia 1, 4, 6)

Number Sense for Whole Numbers, Fractions, Decimals, and Percents:

Order, round whole numbers through 1 billion in standard and expanded form
Read, model, write, order decimals through thousandths in standard and expanded form
Order commonly used fractions, mixed numbers and decimals on a number line
Reduce commonly used fractions to lowest terms
Write a ratio from a representation based on a real-world situation
Compare/contrast/convert fractions, percents, decimals
Model and represent percents and ratios
Describe integers using familiar applications
Model and represent equivalent fractions, improper fractions, and mixed numbers

Operation Sense using Whole Numbers, Fractions, Decimals, and Percents:

Select appropriate operations, methods when solving multi-step problems
Solve teacher and student-generated world problems
Explain solution approach in number sentences, orally and in writing

Computation Sense involving Whole Numbers, Fractions, Decimals, and Percents:

Add, subtract fractions
Add, subtract, multiply, divide decimals
Find percents, fractions, and decimals of whole numbers
Add, subtract, multiply, divide whole numbers with fluency
Use mental math on appropriate problems using a variety of strategies
Solve simple proportions and rates of change
Estimate to check reasonableness of results

Measurement (State Goal 7) (Olympia 1, 3, 4, 8)

Measurement Skills:

Recognize appropriate units for measuring different attributes of objects
Measure length to nearest $\frac{1}{8}$ inch or millimeter
Calculate, compare, convert length, perimeter, area, weight/mass, and volume measurements within customary and metric systems
Draw regular and irregular polygons with given areas and perimeters
Measure and draw angles to nearest degree
Calculate time difference across time zones
Calculate elapsed time including a.m. and p.m.

Estimation Skills:

Approximate and check lengths, areas, volumes, and perimeters
Estimate conversions between measurement within customary and metric

Applications:

Describe relationships in a simple scale drawing (i.e. maps, blueprints)
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Algebra Readiness (State Goal 8) (Olympia 1, 9)

Patterning:

Recognize, create, analyze, compare and extend, geometric and numeric patterns
Demonstrate and graph how the change in one quantity affects the other in functional relationships involving whole numbers
Represent, analyze patterns and functions using words, tables and graphs
Predict patterns to the nth term
Begin to represent repeated factors with exponents
Record geometric patterns numerically

Variables, Number Sentences, and Properties:

Explain computations using number properties (commutative, associative, distributive, transitive, zero, equality, and order of operation)
Write/solve number sentences using a variable to represent an unknown

Geometry (State Goal 9) (Olympia 1, 3, 7)

Spatial Sense:

Build and draw physical models of 2- and 3-dimensional shapes including nets
Identify and describe geometric figures in the world
Use a coordinate system to describe relationships with integers
Describe and draw representations of geometric relationships, patterns, symmetries

Logical Reasoning:

Compare geometric figures on the basis of their properties (parallel, perpendicular, similar, congruent, concave, convex, translations, reflections, rotations, line symmetry, and angle measures)
Use properties of shapes to analyze a problem/solution orally/in writing

Statistics and Probability (State Goal 10) (Olympia 1, 2, 5)

Statistics:

Organize, display, interpret data using pictures, tallies, tables, line plots, bar, double bar, histogram, circle, coordinate, line graphs, stem and leaf plots, box and whiskers
Calculate and analyze data using mean, median, mode, and range of data
Compare different representations of the same data and evaluate how well each representation shows important aspects of the data
Identify, describe, compare situations with constant and varying rates of change
Formulate questions, infer, make predictions and decisions based on data and communicate reasoning

Probability:

List all possible outcomes of 1- and 2-stage chance situations
Compare likelihood of events in terms of certain, more likely, less likely, equally likely, or impossible
Find/interpret experimental probabilities through simulations/activities
Use fractions or percents to describe the chance of an event occurring
Make predictions/decisions based on probabilities (i.e. given a data set, which die/spinner was used..., is a game "fair") and explain reasoning