

**Blind Brook
Grade 4
Math Standards Curriculum Alignment
June 2005**

September - Mid October

Whole Numbers and Algebra

Content Strands

- 4.N.4 Understand the place value structure of the base ten number system:
10 ones = 1 ten
10 tens = 1 hundred
10 hundreds = 1 thousand
10 thousands = 1 ten thousand
- 4.N.5 Recognize equivalent representations for numbers up to four digits and generate them by decomposing and composing numbers
- 4.N.2 Read and write whole numbers to 10,000
- 4.N.1 Skip count by 1,000's
- 4.N.3 Compare and order numbers to 10,000
- 4.N.26 Round numbers less than 1,000 to the nearest tens and hundreds
- 4.A.5 Analyze a pattern or a whole-number function and state the rule, given a table or an input/output box
- 4.A.1 Evaluate and express relationships using open sentences with one operation
- 4.A.3 Find the value or values that will make an open sentence true, if it contains < or >

Process Strands

- 4.PS.1 Explore, examine, and make observations about a social problem or mathematical situation
- 4.PS.4 Act out or model with manipulatives activities involving mathematical content from literature
- 4.PS.5 Formulate problems and solutions from everyday situations
- 4.PS.6 Translate from a picture/diagram to a numeric expression
- 4.RP.1 Use representations to support mathematical ideas
- 4.RP.5 Justify general claims or conjectures, using manipulatives, models, and expressions
- 4.CM.1 Understand and explain how to organize their thought process
- 4.CM.2 Verbally explain their rationale for strategy selection
- 4.CM.9 Increase their use of mathematical vocabulary and language when communicating with others
- 4.CN.1 Recognize, understand, and make connections in their everyday experiences to mathematical ideas
- 4.CN.6 Recognize the presence of mathematics in their daily lives

- 4.CN.3 Connect and apply mathematical information to solve problems
- 4.R.1 Use verbal and written language, physical models, drawing charts, graphs, tables, symbols, and equations as representations
- 4.R.7 Construct effective representations to solve problems
- 4.R.8 Use mathematics to show and understand physical phenomena (e.g., estimate and represent the number of apples in a tree)
- 4.RP.8 Support an argument by trying many cases

Vocabulary

Analyze	collaborate
Examine	Explore identify
Interpret	Invalid approach
Irrelevant information	Make a chart
Problem solving strategies	Draw a picture
Make a diagram	Four-digit number
Process of elimination	Trial and error
Use manipulatives	Real world situation
Recognize	Relevant information
Understand	Valid approach
Verify results	Zero property of addition
Algebraic expression	Accurate
Answer	Clarify
Explain	Organize
Equations	Not equal to (\neq)
Even number	Odd number
Estimation	

Mid October- November (3 Weeks)

Money

Content Strands

- 4.N.14 Use a variety of strategies to add and subtract numbers up to 10,000
- 4.N.27 Check reasonableness of an answer by using estimation
- 4.M.8 Make change, using combined coins and dollar amounts

Process Strands

- 4.PS.17 Analyze problems by identifying relevant versus irrelevant information
- 4.PS.19 State a problem in their own words
- 4.PS.21 Discuss with peers to understand a problem situation
- 4.PS.23 Verify results of a problem
- 4.PS.24 Recognize invalid approaches

Vocabulary

- | | |
|-------------|----------------|
| Discuss | Label work |
| Differences | Decimal number |
| Place value | Symbols |
| Hundredths | |
| Tenths | |
| Ones | |
| Tens | |
| Hundreds | |
| Thousands | |

Early November- January

Operations (Multiplication and Division) and Algebra

Content Strands

- 4.N.13 Develop an understanding of the properties of odd/even numbers as a result of multiplication
- 4.N.16 Understand various meanings of multiplication and division
- 4.N.17 Use multiplication and division as inverse operations to solve problems
- 4.N.20 Develop fluency in multiplying and dividing multiples of 10 and 100 up to 1,000
- 4.N.18 Use a variety of strategies to multiply two-digit numbers by one-digit numbers (with and without regrouping)
- 4.N.15 Select appropriate computational and operational methods to solve problems
- 4.A.4 Describe, extend, and make generalizations about numeric and $(+, -, \times, \div)$ and geometric patterns
- 4.N.21 Use a variety of strategies to divide two-digit dividends by one-digit divisors (with and without remainders)
- 4.N.22 Interpret the meaning of remainders

Process Strands

- 4.PS.7 Represent problem situations in oral, written, concrete, pictorial, and graphical forms
- 4.PS.10 Use process of elimination to solve problems
- 4.PS.14 Make organized lists to solve numerical problems
- 4.PS.15 Make charts to solve numerical problems
- 4.PS.16 Analyze problems by identifying relationships
- 4.PS.18 Analyze problems by observing patterns
- 4.PS.9 Use trial and error to solve problems
- 4.PS.25 Determine whether a solution is reasonable in the context of the original problem
- 4.RP.2 Determine whether a mathematical statement is true or false and explain why
- 4.CM.7 Restate mathematical solutions shared by other students
- 4.CM.9 Increase their use of mathematical vocabulary and language when communicating with others
- 4.CM.10 Describe objects, relationships, solutions, and rationale using appropriate vocabulary
- 4.CM.11 Decode and comprehend mathematical visuals and symbols to construct meaning
- 4.CN.2 Compare and contrast mathematical ideas
- 4.CN.8 Recognize and apply mathematics to other disciplines
- 4.R.6 Connect mathematical representations with problem solving
- 4.R.10 Use mathematics to show and understand mathematical phenomena (e.g., use a multiplication grid to solve odd and even number problems)

Vocabulary

Make an organized list	Multiple
Tables	Multiplication variable
Array	Product
Dividend	Related facts
Division	Remainder
Divisor	Inverse property
Factor	Zero property of multiplication
Operation	Geometric pattern
Open sentence	Numeric pattern
Associative property	True/false
Argument	Counterexample
Explain	Investigate
Justify	Make conjectures
Mathematical statements	Reasonableness of a solution

Mid January – End of January

Geometry

Content Strands

- 4.G.2 Identify points and line segments when drawing a plane figure
- 4.G.1 Identify and name polygons, recognizing that their names are related to the number of sides and angles (triangle, quadrilateral, pentagon, hexagon, and octagon)
- 4.G.3 Find perimeter of polygons by adding sides
- 4.G.4 Find the area of a rectangle by counting the number of squares needed to cover the rectangle
- 4.G.5 Define and identify vertices, faces, and edges of three-dimensional shapes
- 4.M.6 Select tools and units appropriate to the capacity being measured (milliliters and liters)
- 4.M.7 Measure capacity, using milliliters and liters

Process Strands

- 4.PS.20 Determine what information is needed to solve a problem
- 4.PS.22 Discuss the efficiency of different representations of a problem
- 4.RP.9 Disprove an argument by finding counterexamples
- 4.CM.8 Consider strategies used and solutions found in relation to their own work
- 4.CM.2 Verbally explain their rationale for strategy selection
- 4.CM.11 Decode and comprehend mathematical visuals and symbols to construct meaning
- 4.CN.7 Apply mathematics to solve problems that develop outside of mathematics
- 4.CN.4 Understand multiple representations and how they are related
- 4.R.2 Share mental images of mathematical ideas and understandings

Vocabulary

Acute angle	Side
Angle (\angle)	Area
Closed figure	Cone
Cube	Cylinder
Edge	Endpoint
Face	Geometric figure
Intersecting lines	Line segment
Obtuse angle	Octagon
Open figure	Parallel lines
Parallelogram	Pentagon
Perimeter	Right angle
Perpendicular lines	Vertices
Plane figure	Vertex

Point
Polygon
Prism
Pyramid
Quadrilateral
Ray
Rhombus

Two-dimensional figure
Trapezoid
Three-dimensional figure
Straight angle
Sphere
Solid figure
Construct

February

Measurement and Statistics

Content Strands

- 4.M.3 Know and understand equivalent standard units of length: 12 inches = 1 foot
3 feet = 1 yard
- 4.M.1 Select tools and units (customary and metric) appropriate for the length being measured
- 4.M.2 Use a ruler to measure to the nearest standard unit (whole, $\frac{1}{2}$ and $\frac{1}{4}$ inches, whole feet, whole yards, whole centimeters, and whole meters)
- 4.M.4 Select tools and units appropriate to the mass of the object being measured (grams and kilograms)
- 4.M.5 Measure mass, using grams
- 4.N.27 Check reasonableness of an answer by using estimation
- 4.S.3 Represent data using tables, bar graphs, and pictographs
- 4.S.5 Develop and make predictions that are based on data
- 4.S.6 Formulate conclusions and make predictions from graphs
- 4.M.9 Calculate elapsed time in hours and half hours, not crossing A.M./P.M.
- 4.M.10 Calculate elapsed time in days and weeks, using a calendar

Process Strands

- 4.PS.11 Make pictures/diagrams of problems
- 4.PS.12 Use physical objects to model problems
- 4.PS.13 Work in collaboration with others to solve problems
- 4.PS.20 Determine what information is needed to solve a problem
- 4.RP.6 Develop and explain an argument using oral, written, concrete, pictorial, and/or graphical forms
- 4.RP.4 Make conjectures from a variety of representations
- 4.RP.5 Justify general claims or conjectures, using manipulatives, models, and expressions
- 4.CM.4 Organize and accurately label work
- 4.CM.5 Share organized mathematical ideas through the manipulation of objects, drawing, pictures, charts, graphs, tables, diagrams, models, symbols, and expressions in written and verbal form
- 4.CM.6 Answer clarifying questions from others
- 4.CN.1 Recognize, understand, and make connections in their everyday experiences to mathematical ideas
- 4.CN.5 Model situations with objects and representations and be able to make observations
- 4.CN.6 Recognize the presence of mathematics in their daily lives
- 4.R.1 Use verbal and written language, physical models, drawing charts, graphs, tables, symbols, and equations as representations
- 4.R.5 Understand similarities and differences in representations

- 4.R.9 Use mathematics to show and understand social phenomena (e.g., determine the number of buses required for a field trip)
- 4.R.4 Use standard and nonstandard representations with accuracy and detail

Vocabulary

Capacity	Centimeter (cm)
Cup (c)	Customary units of measure
Elapsed time	Equivalent
Gallon (gal)	Gram (g)
Kilogram (km)	Length
Liter (L)	Mass
Meter (m)	Metric units of measure
Milliliter (mL)	Ounce (oz)
Pint (pt)	Pound (lb)
Quart (qt)	Ton

Post-March (2 Weeks)

Statistics

Content Strands

- 4.S.1 Design investigations to address a question from given data
- 4.S.2 Collect data using observations, surveys, and experiments and record appropriately
- 4.S.4 Read and interpret line graphs

Process Strands

- 4.PS.2 Understand that some ways of representing a problem are more helpful than others
- 4.PS.3 Interpret information correctly, identify the problem, and generate possible solutions
- 4.PS.8 Select an appropriate representation of a problem
- 4.RP.7 Discuss, listen, and make comments that support or reject claims made by other students
- 4.CN.3 Connect and apply mathematical information to solve problems
- 4.CM.8 Consider strategies used and solutions found in relation to their own work
- 4.R.3 Recognize and use external mathematical representations

Vocabulary

Graphs
Bar graph
Line graph
Scale on a graph
Graphical representations

April - May

Fractions

Content Strands

- 4.N.19 Use a variety of strategies to multiply two-digit numbers by two-digit numbers (with and without regrouping)
- 4.N.7 Develop an understanding of fractions as locations on number lines and as divisions of whole numbers
- 4.N.8 Recognize and generate equivalent fractions (halves, fourths, thirds, fifths, sixths, and tenths) using manipulatives, visual models, and illustrations
- 4.N.9 Use concrete materials and visual models to compare and order unit fractions or fractions with the same denominator (with and without the use of a number line)
- 4.N.10 Develop an understanding of decimals as part of a whole
- 4.N.11 Read and write decimals to hundredths, using money as a context
- 4.N.12 Use concrete materials and visual models to compare and order decimals (less than 1) to the hundredths place in the context of money
- 4.N.23 Add and subtract proper fractions with common denominators
- 4.N.24 Express decimals as an equivalent form of fractions to tenths and hundredths
- 4.N.25 Add and subtract decimals to tenths and hundredths using a hundreds chart
- 4.A.2 Use the symbols $<$, $>$, $=$, and \neq (with and without the use of a number line) to compare whole numbers and unit fractions and decimals (up to hundredths)

Process Strands

- 4.RP.3 Investigate the use of knowledgeable guessing by generalizing mathematical ideas

Vocabulary

Part	Fraction
Common denominator	Proper fraction
Equivalent fractions	Improper fraction
Halves	
Thirds	
Fourths	
Fifths	
Sixths	
Tenths	
Whole	

June
Geometry

Content Strands

- 4.G.7 Identify points and rays when drawing angles
- 4.G.6 Draw and identify intersecting, perpendicular, and parallel lines
- 4.G.8 Classify angles as acute, obtuse, right, and straight

Process Strands

- 4.PS.8 Select an appropriate representation of a problem and any others that are appropriate

Vocabulary

Acute angle	Side
Angle (\angle)	Area
Closed figure	Cone
Cube	Cylinder
Edge	Endpoint
Face	Geometric figure
Intersecting lines	Line segment
Obtuse angle	Octagon
Open figure	Parallel lines
Parallelogram	Pentagon
Perimeter	Right angle
Perpendicular lines	Vertices
Plane figure	Vertex
Point	Two-dimensional figure
Polygon	Trapezoid
Prism	Three-dimensional figure
Pyramid	Straight angle
Quadrilateral	Sphere
Ray	Solid figure
Rhombus	

Additional Grade 4 Vocabulary

Communication

Verbal form of reasoning
Written form of reasoning

Connections

Apply
Compare
Connect
Contrast
Similarities

Representation

Multiple representations
Types of representations
Charts
Physical models
Oral representations
Pictorial representations
Concrete representations
Written representations
Verbal language
Written language

Number Sense and Operations

Compose a number
Decompose a number
Round (rounding)