

**Flossmoor School District 161
Mathematics Curriculum Framework
Grade 5**

Month August/September

Goal #6 Number Sense

Objective
SD161 Know how and when to use a calculator
SD161 Use estimation to judge the reasonableness of an answer, with or without a calculator
SD161 Practicing/reviewing addition, subtraction, multiplication and division facts through 12
6.5.15 Solve problems involving the commutative, distributive, and identity properties of operations on whole numbers (e.g., $37 \times 46 = 46 \times 37$, $270 \times 5 = (200 \times 5) + (70 \times 5)$)

Goal #7 Measurement

7.5.02 Select and use appropriate standard units and tools to measure length (to the nearest $\frac{1}{4}$ inch or mm), mass/weight, capacity, and angles (right, acute, obtuse)
7.5.03 Solve problems involving the perimeter and area of a triangle, rectangle, or irregular shape using diagrams, models, and grids or by measuring or using given formulas (may include sketching a figure from its description)
7.5.04 Compare and estimate length (including perimeter), area, volume, weight/mass, and angles (0° to 180°) using referents
7.5.04 Compare and estimate length (including perimeter), area using referents

Goal #8 Algebra

8.5.01 Determine a missing term in a sequence, extend a sequence, and identify errors in a sequence when given a description or sequence
8.5.09 Solve word problems involving unknown quantities

Goal #9 Geometry

SD161 Use protractor to solve problems
9.5.01 Classify, describe, and sketch two-dimensional shapes (triangles, quadrilaterals, pentagons, hexagons, and octagons) according to the number of sides, length of sides, number of vertices, and interior angles (right, acute, obtuse)
9.5.03 Solve problems using properties of triangles (e.g., sum of interior angles of a triangle is 180°)
9.5.06 Identify whether or not a figure has one or more lines of symmetry, and sketch or identify all lines of symmetry
9.5.07 Identify, describe, and predict results of reflections, translations, and rotations of two-dimensional shapes
9.5.08 Identify and sketch parallel, perpendicular, and intersecting lines
9.5.09 Identify and sketch acute, right, and obtuse angles
9.5.13 Identify congruent and similar figures by visual inspection
9.5.14 Determine if figures are similar, and identify relationships between corresponding parts of similar figures
9.6.03 Solve problems using properties of triangles and quadrilaterals (e.g., sum of interior angles of a quadrilateral is 360°)

Mathematics Curriculum Framework – Grade 5

Month October

Goal #6 Number Sense

Objective
SD161 Know how and when to use a calculator
SD161 Use estimation to judge the reasonableness of an answer, with or without a calculator
SD161 Practicing/reviewing addition, subtraction, multiplication and division facts through 12
6.5.01 Read, write, recognize, and model equivalent representations of whole numbers and their place values up to 100,000,000
6.5.02 Read, write, recognize, model, and interpret numerical expressions from a given description or situation
6.5.05 Read, write, recognize, and model decimals and their place values through thousandths
6.5.06 Represent multiplication as repeated addition
6.5.07 Order and compare whole numbers up to 1,000,000
6.5.08 Order and compare decimals through hundredths
6.5.11 Solve problems involving descriptions of numbers, including characteristics and relationships (e.g., odd/even, factors/multiples, greater than, less than, square numbers)
6.5.12 Solve problems and number sentences involving addition, subtraction, multiplication, and division using whole numbers
6.5.16 Make estimates appropriate to a given situation with whole numbers
6.5.13 Solve problems and number sentences involving addition and subtraction of decimals through hundredths (with or without monetary labels)
6.5.16 Make estimates appropriate to a given situation with whole numbers, fractions, and decimals

Goal #8 Algebra

8.5.02 Construct and identify a rule that can generate the terms of a given sequence
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8.5.03 Write an expression using variables to represent unknown quantities
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Goal #9 Geometry

9.5.02 Identify and describe three-dimensional shapes (cubes, spheres, cones, cylinders, prisms, and pyramids) according to their characteristics (faces, edges, vertices)
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9.5.10 Identify the two-dimensional components of a three-dimensional object
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9.5.11 Identify a three-dimensional object from its net

9.5.12 Predict the result of composing or decomposing shapes or figures

Mathematics Curriculum Framework – Grade 5

Month November

Goal #6 Number Sense

Objective
SD161 Know how and when to use a calculator
SD161 Use estimation to judge the reasonableness of an answer, with or without a calculator
SD161 Practice and apply addition, subtraction, multiplication (2 digits by 2 digits) and division (3 digits by 2 digits)
6.5.18 Solve problems involving proportional relationships, including unit pricing (e.g., one apple costs 20¢, so four apples cost 80¢)

Goal #7 Measurement

7.5.02 Select and use appropriate standard units and tools to measure length (to the nearest $\frac{1}{4}$ inch or mm)
7.5.07 Solve problems involving map interpretation (e.g., one inch represents five miles, so two inches represent ten miles)

Goal #8 Algebra

8.5.04 Evaluate algebraic expressions with a whole number variable value (e.g., evaluate $m + m + 3$ when $m = 4$)
8.5.05 Demonstrate, in simple situations, how a change in one quantity results in a change in another quantity (e.g., input–output tables)
8.5.08 Solve for the unknown in an equation with one operation (e.g., $2+n=20$, $n\div 2=6$)

Goal #9 Geometry

SD161 Solve problems using a compass
9.5.04 Identify, describe, and sketch circles, including radius and diameter
9.5.05 Graph, locate, identify points, and describe paths using ordered pairs (first quadrant)
9.5.15 Determine the distance between two points on a horizontal or vertical number line in whole numbers

Mathematics Curriculum Framework – Grade 5

Month December

Goal #7 Measurement

Objective
SD161 Know how and when to use a calculator
SD161 Use estimation to judge the reasonableness of an answer, with or without a calculator
7.5.01 Solve problems involving elapsed time in compound units
7.5.06 Solve problems involving unit conversions <u>within the same measurement system</u> for time, length, and weight/mass, including compound units (e.g., 5ft 5in, 2lbs 2oz)

Goal #8 Algebra

8.5.06 Translate between different representations (table, written, or pictorial) of whole number relationships
8.5.07 Represent problems with equations and inequalities

Goal #10 Data Analysis, Statistics, and Probability

10.5.01 Read, interpret, and make predictions from data represented in a pictograph, bar graph, line (dot) plot, Venn diagram (with two circles), chart/table, line graph, or circle graph
10.5.02 Create a pictograph, bar graph, chart/table, or line graph for a given set of data
10.5.03 Determine the mode, range, median (with an odd number of data points), and mean, given a set of data or a graph

Mathematics Curriculum Framework – Grade 5

Month January

Goal #6 Number Sense

Objective
SD161 Know how and when to use a calculator
SD161 Use estimation to judge the reasonableness of an answer, with or without a calculator
6.5.03 Read, write, recognize, and model equivalent representations of fractions, including improper fractions and mixed numbers
6.5.04 Recognize, translate between, and model multiple representations of decimals, fractions less than one (halves, quarters, fifths, and tenths), and percents (0%, 25%, 50%, 75%, and 100%)
6.5.09 Order and compare fractions having like denominators with or without models
6.6.09 Order and compare fractions and mixed numbers having like or unlike denominators
6.6.10 Identify and locate decimals, fractions, and mixed numbers on a number line
6.6.20 Read, write, recognize, and model percents from 0% to 100%

Goal #7 Measurement

7.6.01 Select and use appropriate standard units and tools to measure length, mass/weight, capacity, and angles
7.6.06 Solve problems involving scale drawings and maps

Goal #9 Geometry

9.5.05 Graph, locate, identify points, and describe paths using ordered pairs (first quadrant)
9.5.15 Determine the distance between two points on a horizontal or vertical number line in whole numbers

Goal #10 Data Analysis, Statistics, and Probability

10.5.05 Apply the fundamental counting principle in a simple problem (e.g., How many different combinations of one-scoop ice cream cones can be made with 3 flavors and 2 types of cones?)
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Mathematics Curriculum Framework – Grade 5

Month February

Goal #6 Number Sense

Objective
SD161 Know how and when to use a calculator
SD161 Use estimation to judge the reasonableness of an answer, with or without a calculator
6.5.09 Order and compare fractions having unlike denominators with or without models
6.5.17 Identify and express ratios using appropriate notation (i.e., a/b , a to b, a:b), and identify equivalent ratios
6.6.05 Read, write, recognize, and model equivalent representations of decimals and their place values through thousandths
6.6.06 Represent repeated factors using exponents
6.6.13 Solve problems and number sentences involving addition, subtraction, and multiplication of decimals
6.6.14 Solve problems involving addition and subtraction of fractions and mixed numbers, and express answers in simplest form
6.6.15 Identify and apply order of operations to simplify numeric expressions involving whole numbers
6.6.18 Identify and express ratios using appropriate notation (i.e., a/b , a to b, a:b), identify equivalent ratios, and explain ratios that represent a given situation
6.6.19 Solve problems involving proportional relationships, including unit pricing (e.g., seven apples cost \$1.40, so nine apples cost \$1.80)

Goal #7 Measurement

7.4.05 Determine the volume of a solid figure
7.5.02 Select and use appropriate standard units and tools to measure length (to the nearest $\frac{1}{4}$ inch or mm), mass/weight, capacity, and angles
7.5.05 Determine the volume of a right rectangular prism using an appropriate formula or strategy

7.6.03 Compare and estimate length (including perimeter), area, volume, weight/mass, and angles (0° to 180°) using referents

7.6.05 Solve problems involving unit conversions within the same measurement system for time, length, and weight/mass, including compound units (e.g., 5ft 5in, 2lbs 2oz)

Goal #9 Geometry

SD161 Solve problems using a compass

9.5.04 Identify, describe, and sketch circles, including radius and diameter

Goal #10 Data Analysis, Statistics, and Probability

10.5.04 Solve problems involving the probability of a simple event, including representing the probability as a fraction between zero and one

10.6.05 Solve problems involving the probability of a simple event, including probability as a fraction, decimal, or percent

Mathematics Curriculum Framework – Grade 5

Month March

Goal #6 Number Sense

Objective
SD161 Know how and when to use a calculator
SD161 Use estimation to judge the reasonableness of an answer, with or without a calculator
SD161 Practice/review addition, subtraction, multiplication and division facts through 12
6.5.12 Solve problems and number sentences involving addition, subtraction, multiplication, and division using whole numbers
6.6.18 Identify and express ratios using appropriate notation (i.e., a/b , a to b, a:b), identify equivalent ratios, and explain ratios that represent a given situation

Goal #7 Measurement

7.4.05 Determine the volume of a solid figure that shows cubic units
7.6.02 Solve problems involving the perimeter and area of a triangle, parallelogram, or irregular shape using diagrams, models, and grids or by measuring or using given formulas (may include sketching a figure from its description)

Goal #8 Algebra

8.6.01 Determine a missing term in a sequence, extend a sequence, and construct and identify a rule that can generate the terms of a given sequence (e.g., 3, 6, 9, . . . is explained by the rule $3n$, for $n \geq 1$)
8.6.02 Write an expression using variables to represent unknown quantities
8.6.08 Represent problems with equations and inequalities
8.6.09 Solve for the unknown in an equation with one operation (e.g., $8x = 24$, $m \div 2 = 25$)
8.6.10 Solve word problems involving unknown quantities

Goal #9 Geometry

9.6.02 Identify and describe three-dimensional shapes (cubes, spheres, cones, cylinders, prisms, and pyramids) according to their characteristics (faces, edges, vertices)

9.6.03 Solve problems using properties of triangles and quadrilaterals (e.g., sum of interior angles of a quadrilateral is 360°)

9.6.04 Identify, describe, and sketch circles, including radius, diameter, and chord

9.6.11 Identify congruent and similar figures by visual inspection

Goal #10 Data Analysis, Statistics, and Probability

10.6.06 Apply the fundamental counting principle in a simple problem (e.g., How many different 3-digit numbers can be made with the digits 1, 2, and 2?)

Mathematics Curriculum Framework – Grade 5

Month April

Goal #6 Number Sense

Objective
SD161 Know how and when to use a calculator
SD161 Use estimation to judge the reasonableness of an answer, with or without a calculator
SD161 Practice/review addition, subtraction, multiplication and division facts through 12
6.6.02 Read, write, recognize, model, and interpret numerical expressions from a given description or situation
6.6.03 Read, write, recognize, and model equivalent representations of fractions, including improper fractions and mixed numbers
6.6.09 Order and compare fractions and mixed numbers having like or unlike denominators
6.6.10 Identify and locate decimals, fractions, and mixed numbers on a number line
6.6.20 Read, write, recognize, and model percents from 0% to 100

Goal #7 Measurement

7.6.01 Select and use appropriate standard units and tools to measure length, mass/weight, capacity, and angles
7.6.06 Solve problems involving scale drawings and maps

Goal #8 Algebra

8.6.04 Determine a rule having two operations from an input-output table (e.g., multiply by 3 and add 2)
8.6.06 Translate between different representations (table, written, or pictorial) of whole number relationships

Goal #9 Geometry

9.6.01 Classify, describe, and sketch regular and irregular two-dimensional shapes according to the number of sides, length of sides, number of vertices, and interior angles

9.6.05 Graph, locate, identify points, describe paths, and plot figures using ordered pairs (first quadrant)

9.6.09 Identify a three-dimensional object from its net

9.6.12 Determine if figures are similar, and identify relationships between corresponding parts of similar figures

9.6.13 Determine the distance between two points on a horizontal or vertical number line

Goal #10 Data Analysis, Statistics, and Probability

10.5.01 Read, interpret, and make predictions from data represented in a pictograph, bar graph, line (dot) plot, Venn diagram (with two circles), chart/table, graph line graph, or circle

10.6.04 Determine the mode, range, median, and mean, given a set of data or a graph

Mathematics Curriculum Framework – Grade 5

Month May/June

Goal #6 Number Sense

Objective
SD161 Know how and when to use a calculator
SD161 Use estimation to judge the reasonableness of an answer, with or without a calculator
SD161 Practice/review addition, subtraction, multiplication and division facts through 12
6.6.01 Read, write, recognize, and model equivalent representations of whole numbers and their place values
6.6.07 Order and compare whole numbers
6.6.08 Order and compare decimals through thousandths
6.6.11 Solve problems involving descriptions of numbers, including characteristics and relationships (e.g., odd/even, factors/multiples, greater than, less than, square numbers, primes)
6.6.16 Solve problems involving the commutative, distributive, and associative properties of operations on whole numbers [e.g., $(5 \times 7) \times 2 = 5 \times (7 \times 2)$]
6.6.17 Make estimates appropriate to a given situation, and analyze what effect the estimation method used has on the accuracy of results

Goal #7 Measurement

7.6.04 Determine the volume of a right rectangular prism using an appropriate formula or strategy

Goal #8 Algebra

8.6.03 Evaluate algebraic expressions with up to two whole number variable values (e.g., evaluate $3m + n + 3$ when $m = 4$ and $n = 2$).
8.6.05 Select a table of values that satisfies a linear equation, and recognize the ordered pairs on a rectangular coordinate system
8.6.07 Identify graphs of inequalities on a number line

Goal #9 Geometry

9.6.06 Identify, describe, and predict results of reflections, translations, and rotations of two-dimensional shapes

9.6.07 Identify and sketch parallel, perpendicular, and intersecting lines

9.6.08 Identify and sketch acute, right, and obtuse angles

9.6.10 Recognize which attributes (such as shape, perimeter, and area) change or don't change when plane figures are composed

Goal #10 Data Analysis, Statistics, and Probability

10.6.02 Compare different representations of the same data

10.6.03 Create a bar graph, chart/table, line graph, or circle graph with common referents ($\frac{1}{4}$, 50%, .75) for a given set of data