GRADE 5 MATH
OVERVIEW

A major goal of the Mathematics program at the 5th grade level is the development of problem solving skills. Students are engaged in many problem-solving situations and have the opportunity to reflect upon their solutions. They are actively involved individually and in groups in exploring, conjecturing, analyzing and applying Mathematics in both mathematical and real-world context. Students are engaged in hands-on conceptual learning and have opportunities to express their understanding in a variety of modes (diagrams, graphs, words, symbols, numbers and manipulatives). Technology assists the students in exploration activities and is used as a problem-solving device.

GRADE 5 MATH
INSTRUCTIONAL OUTLINE

1. NUMBERS AND NUMERATION

a) Read and write numbers to one billion
b) Investigate powers of 10 in place value (hundreds place is 10 squared or 10 x 10)
c) Express numbers in expanded notation using powers of 10
d) Round off numbers to nearest 10,000
e) Use number line as aid in understanding negative concept

2. OPERATIONS WITH WHOLE NUMBERS AND INTEGERS

a) Concept of least common multiple and greatest common factor
b) Find quotient and remainder when a three-digit is divided by a two-digit number
c) Quick review of operations (+, −, x, ÷)
d) Literal problems using single operations across curriculum
e) Develop concept of order of operation (addition, subtraction, multiplication, division)

3. FRACTIONS AND DECIMALS

a) Add and subtract like denominators
b) Add and subtract with unlike denominators
c) Multiply decimals to tenths
d) Practice locating decimal points in products
e) Develop concept of proper and improper fractions
f) Develop concept of percent in multiple of five
g) Continue addition and subtraction of fractions with like and unlike denominators
h) Change improper fractions to mixed number
i) Compare fractions to fractions and decimals to decimals
j) Addition and subtraction of decimals with hundredths and thousandths
k) Multiply and divide decimals to hundredths
l) Multiply and divide decimals by powers of 10
m) Round off decimals to thousandths
n) Use pictures and/or graphic illustrations to demonstrate multiplication and division of fractions
o) Practice writing equivalent forms of common fractions and decimals ($^1/_2$ = .5)
p) Multiplication of fractions
q) Multiplication and mixed numbers and division of fractions

4. PROBABILITY AND STATISTICS

a) Use compass and protractors to construct circle graphs
b) Develop concept of average (arithmetic mean)
c) Continue to explore methods of collecting and analyzing data
d) Use tables, graphs, and diagrams to represent collected data
e) Compare bar, line, and circle graphs which represent same information
f) Determine probabilities of independent events
g) Make arrangements and combinations

5. GEOMETRY AND MEASUREMENT

a) Learn how to use a compass and protractor
b) Use rulers, protractors and compasses to construct plane geometric figures (circles, squares, etc.)
c) Use terms such as polygon, circle, chord, radius, angle, diameter, face edge, vertex, line segment, point, parallel and perpendicular and intersecting
d) Extend work in coordinate geometry to both positive and negative coordinates
e) Be familiar with common metric units used in everyday life
f) Continue to study perimeter and area using paper and manipulatives
g) Develop formulas for the area and perimeter of squares and rectangles
h) Measure area and perimeter of rectangles, triangles, and irregular polygons using blocks, geoboards, graph paper, etc.
i) Continue to measure volume (prisms with manipulatives)
j) Continue to measure temperature using **Celsius** and **Fahrenheit** thermometers
k) Continue to draw and measure plane figures using rulers, protractors, and compasses
l) Use pictures to explore **similar** and **congruent** figures; symmetry

6. PROBLEM SOLVING (ONGOING)

a) Use models, facts and relationships to draw conclusions
b) Use statements “and” or “not”
c) Use patterns and relationships to analyze math situations
d) Be able to justify answers, math checks
e) Use logical reasoning to reach simple conclusions
f) Apply a variety of reasoning strategies
g) Make conclusions based on inductive reasoning
h) Justify conclusions involving simple and compound