

SIXTH GRADE MATH

By the end of 6th Grade a student will be able to . . .

NUMBERS

- read and write numbers through billions using powers of ten (i.e., use exponents)
- convert numbers to scientific notation
 $(2,100,000 = 2.1 \times 10^6)$
- determine the prime factors in numbers
 $(24 = 2 \times 2 \times 2 \times 3)$
- find least common multiple and greatest common factor of a set of numbers (LCM of 12 & 18=36 ; GCF of 12 & 18=6)
- simplify simple arithmetic expressions using the order of operations
 $(4 \times (6+2) - 3^2 = 23)$
- solve multiplication word problems with whole numbers and familiar fractions. (*I need to triple the following recipe. What measurements will I use for each ingredient? $1\frac{1}{2}$ c flour, 2 c sugar, $\frac{1}{4}$ c butter, $\frac{3}{4}$ c chocolate chips*)
- apply properties of numbers to problems (commutative, associative, distributive, identity) and reciprocal operations
 $(2 \times \frac{1}{2} = 1)$

MEASUREMENT & GEOMETRY

- use formulas to determine the perimeter, area, volume, and surface area of geometric figures
- apply geometric concepts of points, lines and planes to draw segments, angle and line bisectors, perpendicular lines, etc., using a compass and straightedge
- determine unknown angle measures

MEASUREMENT & GEOMETRY, cont.

- solve problems using vertical, complementary and supplementary angles
- create a three-dimensional object from a two-dimensional representation (e.g., cube from squares)
- construct proofs about geometric relationships (e.g., relationship between vertical angles)
- measure an angle using a protractor or angle measure
- measure figure dimensions to calculate perimeter and area
- estimate distance, weight, temperature, and time

APPLYING MATH, PROBLEM-SOLVING, GRAPHING

- estimate and compute using the most appropriate method (e.g., mental, pencil & paper, calculator, computer)
- create and solve problems using basic algebraic equations (*If a large pizza costs \$5 more than a small pizza, how much does a large pizza cost? $L = s + \$5.00$*)
- plot ordered number pairs in four quadrants
- construct, interpret and use graphs for a variety of uses (e.g., simple inequalities, ordered pairs)
- gather and analyze data to test a hypothesis and communicate your findings
- calculate, compare and determine the probability of events
- construct a model to determine the probability of an event
- communicate outcomes by a variety of methods

DECIMALS, FRACTIONS, PERCENTAGES

- add and subtract decimals
- add and subtract mixed numbers and fractions
- convert between fractions and mixed numbers
- compare and order fractions and decimals
- solve word problems using percents, ratios and proportions (*Of 20 people, 4 like Coke, 6 like Pepsi, 10 like 7up. Give the percent, ratio and proportion for each preference of pop.*)

PATTERNS, FUNCTIONS, ALGEBRA

- recognize sequences of numbers (i.e., patterns)
- simplify and evaluate algebraic expressions
Simplify
 $5n + 4 - 2n + 5$ becomes $3n + 9$
Evaluate: If $n=3$, evaluate $3n + 9$
- express properties of numbers and operations using variables ($4 + a = a + 4$)
- create, model and solve algebraic equations using concrete materials