

# *Ray's for Today Scope & Sequence:*

## *Level 6 - Ages 11 and 12*

### **Number Concepts**

- types of numbers: whole numbers, zero, rational numbers (fractions/decimals), percents, ratios
- Commutative, Identity, Associative, and Distributive Properties for Addition and Multiplication
- review powers of ten
- exponents and square roots
- place values to hundred trillion
- review Roman numerals
- rounding/estimating types of numbers
- decimal place values to millionths
- multiples, factors, factor trees
- prime & composite numbers
- function tables
- operating on integers (signed numbers)
- ordered pairs & complete coordinate plane
- sequences – numeric and figural
- Fibonacci Sequence
- review of sets (intersecting sets, union of sets, subsets, null set) and Venn diagrams

### **Arithmetic Operations**

- signs of operations & comparison
- adding, subtracting, multiplying, & dividing whole numbers, fractions, decimals
- operations with percents
- multiplying and dividing by powers of 10 and multiples of 10
- greatest common divisor (GCD)
- lowest common multiple (LCM)
- adding and subtracting integers
- using letters as unknowns
- using a formula
- finding the unknown value
- order of operations
- using a calculator

### **Money**

- arithmetic operations with money
- money story problems
- money transactions with percents (discounts, sale price, list price, cost, overhead, mark-up)
- using order forms

- paymaster calculations
- taking inventory

## **Time**

- review elapsed time
- world time zones
- reviewing schedules
- converting units of time
- adding/subtracting mixed time units
- story problems with elapsed time across AM/PM

## **Measurement**

- review of customary measurements, abbreviations, and equivalencies
- review of metric measurements, abbreviations, and equivalencies
- temperature comparisons: Fahrenheit and Centigrade
- unit conversions within customary measures
- unit conversions within metric measures
- adding & subtracting compound measures
- using cancellation with conversions
- multiplying and dividing measures

## **Geometric Constructions**

- review plane and solid figures
- review closed & open figures
- review components of plane geometry: point, lines, segment, ray
- review types of angles and measuring
- using a protractor and mechanical compass
- constructing an angle
- copying an angle and line segment
- bisect an angle and line segment
- constructing an angle
- review chart of regular polygons
- review plane geometry figures: rectangle, square, triangle, circle, polygons, rhombus, parallelogram, quadrilateral
- review linear & curved figures
- intersecting and parallel lines
- diagonals
- identifying components within a figure
- corresponding parts
- types of triangles: equilateral, right, acute, obtuse, scalene; base of a triangle
- sum of the angles of triangle & quadrilaterals
- circle: center point, radius, diameter, chord, central angle, circumference
- area of a circle
- review perimeter & area of a rectangle/square

- area of a triangle
- area of parallelogram & rhombus
- area of combined figures
- area of trapezoids
- using area with a house plan
- review transformations: slides, flips, turns
- review symmetry
- similarity
- congruence & corresponding parts
- review volume of cuboid and cube
- surface area and nets
- identifying solid figures: cube, cuboid, cone, cylinder, ellipsoid, sphere, tetrahedron, prisms, pyramids, hemisphere
- elements of solid geometry figures – face, edges, bases, vertices, apex
- polyhedrons and non-polyhedrons
- pyramids
- area of a sphere and cylinder

## **Fractions**

- review fraction and mixed numbers concepts
- review equivalent fractions and reducing fractions
- review all four arithmetic operations with fractions and mixed numbers
- reciprocals
- cancellation
- fraction story problems

## **Decimals**

- review decimal concepts
- decimal place values through millionths
- review arithmetic operations with decimals
- multiplying and dividing by powers of 10 and multiples of 10
- decimal story problems

## **Percents**

- review percent concepts
- percents and rational numbers
- percents in money transactions: list price, discounts, sale price, sales tax
- percents in other applications
- finding the percent of a number (three types of problems)
- finding the percent of a mixed number
- fractional percents

- **Ratios**

- review ratio concepts
- review three forms of writing a ratio
- review ratios, percents, fractions
- proportions
- equivalent ratios
- terms of a proportion
- means and extremes of a proportion
- multiplication principle of means and extremes (cross-products)
- using ratios and proportions
- scale drawings
- rates and unit rate
- ratio story problems

- **Graphing & Statistics**

- review data collection
- review baseline statistics: frequency, range, mode, median, mean
- review types of graphs
- comparing types of graphs
- interpreting/reading graphs
- review function table
- introduce line plots
- introduce stem-and-leaf plots
- introduce normal distribution and bell curve

**Problem-Solving**

- terms and expressions
- review problem-solving strategies
- making more involved drawings to picture known and unknown values
- using what already known when not stated in a problem
- more involved problems with whole numbers, fractions, decimals, percents
- more complex problems: work, distance, number puzzles, age problems, money transactions
- distance problems
- math reasoning skills