



Pre-Algebra Curriculum

Based on Indiana Department of Education Academic Standards

Week 1



Number Sense

- Rational and irrational numbers
 - Adding, subtracting, multiplying and dividing
- Decimal position and expansion of numbers
- Estimating and plotting of irrational numbers
- Simplifying expressions with integer exponents using:
 - Product of powers property
 - Power of a product property
 - Power to a power rule
 - Quotient of powers
 - Negative Exponent rule
 - Zero-exponent rule
 - Properties of integer exponents
- Square Roots
 - Evaluating the square root of a perfect square
 - Estimating the square root of non-perfect squares

Week 2



Computation

- Scientific notation
 - Estimations
 - The estimation of a large quantity by expressing it as the product of a single-digit number and a positive power of ten
 - The estimation of a very small number by expressing it as the product of a single-digit number and a negative power of ten
 - Computation between two numbers written in scientific notation

Week 3



Algebra and Functions

- Linear equations
 - Collecting and combining like terms
 - Solving equations of the form $x + p = q$, $x - p = q$, $px = q$ and $x/p = q$ fluently

- Solving equations of the form $px + q = r$ and $p(x + q) = r$ fluently, where p , q , and r are specific rational numbers
- Using the distributive property
- Simplifying linear equations to determine if it has one solution, no solutions, or infinitely many solutions
- Functions
 - Defining a function as a rule, where for each input there is exactly one output
 - Identifying the independent and dependent variables
 - Identifying inputs and outputs of a function by graphing them as ordered pairs on a coordinate grid

Week 4



Algebra and Functions (continued)

- Graphing
- Increasing/decreasing
- Linear/nonlinear
- Maximum/minimum values
- Match the graph of a function to a given situation
- Slope and rate of change: interpreting the equation $y = mx + b$ as defining a linear function, where the graph is a straight line
- Distance-time graph
- Point of Intersection

Week 5



Geometry

- 3-Dimensional Figures
 - Right Rectangular Prism
 - Cylinder
 - Cone
 - Sphere
 - Pyramid
- Measurement Formulas
 - Volume
 - Surface Area

Week 6



Geometry (continued)

- Movement Properties of 2-D and 3-D figures
 - Rotation
 - Reflection
 - Translation
 - Dilation
- 2-Dimensional Figures
 - Congruence

- Coordinates and coordinate notation
- Pythagorean Theorem
 - Right triangles

Week 7

+ Data Analysis, Statistics, and Probability

- Data Analysis
 - Scatter Plot
 - Outlier
 - Positive, negative, and linear association
 - Extrapolation and interpolation

Week 8

+ Data Analysis, Statistics, and Probability (continued)

- Probability
 - Simple, compound, independent, dependent, complementary, and mutually exclusive events
 - Sample space
 - Tree diagrams
 - Multiplication counting principle



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