Curriculum Big Ideas

Mathematics

- NUMBERS — The set of real numbers is infinite, and each real number can be associated with a unique point on the number line.
- THE BASE TEN NUMERATION SYSTEM — The base ten numeration system is a scheme for recording numbers using digits 0-9, groups of ten, and place value.
- EQUIVALENCE: Any number, measure, numerical expression, algebraic expression, or equation can be represented in an infinite number of ways that have the same value.
- COMPARISON: Numbers, expressions, and measures can be compared by their relative values.
- OPERATION MEANINGS & RELATIONSHIPS: The same number sentence (e.g. 12-4 = 8) can be associated with different concrete or real-world situations, AND different number sentences can be associated with the same concrete or real-world situation.
- PROPERTIES: For a given set of numbers there are relationships that are always true, and these are the rules that govern arithmetic and algebra.
- BASIC FACTS & ALGORITHMS: Basic facts and algorithms for operations with rational numbers use notions of equivalence to transform calculations into simpler ones.
- ESTIMATION: Numerical calculations can be approximated by replacing numbers with other numbers that are close and easy to compute with mentally. Measurements can be approximated using known referents as the unit in the measurement process.
- PATTERNS: Relationships can be described and generalizations made for mathematical situations that have numbers or objects that repeat in predictable ways.
- VARIABLE: Mathematical situations and structures can be translated and represented abstractly using variables, expressions, and equations.
- PROPORTIONALITY: If two quantities vary proportionally, that relationship can be represented as a linear function.
- RELATIONS & FUNCTIONS: Mathematical rules (relations) can be used to assign members of one set to members of another set. A special rule (function) assigns each member of one set to a unique member of the other set.
- EQUATIONS & INEQUALITIES: Rules of arithmetic and algebra can be used together with notions of equivalence to transform equations and inequalities so solutions can be found.
- SHAPES & SOLIDS: Two- and three-dimensional objects with or without curved surfaces can be described, classified, and analyzed by their attributes.
- ORIENTATION & LOCATION: Objects in space can be oriented in an infinite number of ways, and an object's location in space can be described quantitatively.