

Knowledge and Skills for Mathematics

Algebra and Functions

- Students classify and identify attributes of basic families of functions (linear, quadratic, power, exponential, absolute value, simple polynomial, rational and radical).
- Students demonstrate understanding of the concept of a function, identify its attributes, and determine the results of operations performed on function.
- Students use a variety of techniques to solve and graph quadratic functions and interpret the results in the context of a problem situation.
- Students demonstrate facility with algebraic manipulations, perform algebraic computations easily and routinely, and rewrite expressions and equations to gain information and find solutions.
- Students identify and demonstrate understanding about cyclic phenomena and situations that give rise to quadratic equations in two variables.
- Students graph polynomial, rational, step and piecewise-defined functions and explain the relationship between their equations and their graphs.
- Students analyze and explain the connections between algebraic and geometric representations of mathematical objects.
- Students use direct and recursive methods to prove and derive formulas and statements.
- Students understand the use of matrices to organize information and perform simple operations.
- Students justify and use properties from number systems to combine and simplify functions and matrices.

Measurement and Geometry

- Students identify, formulate and confirm conjectures, find missing measures, and solve problems involving angles, right triangles, other polygons and circles.
- Students deepen their understanding of the interrelationships among two- and three-dimensional geometric objects and visualize and describe objects, paths and regions in space.
- Students demonstrate understanding of an axiomatic system, and the nature of proof.

Statistics, Data, Analysis, and Probability

- Students estimate relative frequency, compute probability and demonstrate understanding of ways to make predictions from samples, and experiments in situations involving uncertainty, including dependent and conditional events.

**Pajaro Valley Unified School
District**

**Mathematics Standards
For
Integrated Mathematics Program 3**

Grades 8-12