Glossary of Manipulatives

AngLegs [®] AngLegs enable students to study polygons, perimeter, area, angle measurement, side lengths, and more. The set includes 72 snap-together AngLegs pieces (12 each of six different lengths) and two snap-on View-Thru [®] protractors.
Centimeter Cubes These plastic cubes are 1 cm on a side and come in 10 colors. They can be used to teach counting, patterning, and spatial reasoning. They are suitable for measuring area and volume and also may be used to generate data for the study of probability.
Color Tiles These 1" square plastic tiles come in four different colors: red, blue, yellow, and green. They can be used to explore many mathematical concepts, including those associated with geometry, patterns, and number sense.
Cuisenaire Rods Cuisenaire Rods include rods of 10 different colors, each corresponding to a specific length. White rods, the shortest, are 1 cm long. Orange rods, the longest, are 10 cm long. Rods allow students to explore all fundamental math concepts, including addition and patterning, multiplication, division, fractions and decimals, and data analysis.
Deluxe Rainbow Fraction [®] Circles This set consists of nine color-coded, $3\frac{1}{2}$ ["] plastic circles representing a whole, halves, thirds, fourths, fifths, sixths, eighths, tenths, and twelfths. The circles enable students to explore fractions, fractional equivalences, the fractional components of circle graphs, and more.
Algeblocks [®] This assortment of colored blocks provides students with a concrete way to represent constants and variables. Students can use Algeblocks to build representations of abstract algebraic expressions and equations. The blocks can be manipulated to perform various operations and solve problems.
Fraction Tower[®] Equivalency Cubes Fraction Tower Equivalency Cubes snap together to demonstrate fractions, decimals, and percentages. Each tower is divided into stacking cubes that represent a whole, halves, thirds, fourths, fifths, sixths, eighths, tenths, and twelfths. Each cube is labeled with the part of a whole that it represents. One side shows the fraction, another shows the decimal, and a third shows the percentage. The fourth side is blank. Students can turn the cubes or towers to see each of the representations of the same value. Towers, or portions of towers, can be compared with each other.

Geoboard The double-sided geoboard is 7.5" square and made of plastic. One side has a 5 x 5 peg grid. The other has a circle with a 12-peg circumference. Students stretch rubber bands from peg to peg to form geometric shapes. The geoboard can be used to study symmetry, congruency, area, and perimeter.
Pattern Blocks Pattern Blocks come in six different color-shape varieties: yellow hexagons, red trapezoids, orange squares, green triangles, blue parallelograms (rhombuses), and tan rhombuses. They can be used to teach concepts from all strands of mathematics; for example, algebraic concepts such as patterning and sorting, as well as geometry and measurement concepts such as transformations, symmetry, and area. The blocks can also be used to study number and fraction relationships.
Relational GeoSolids [®] Relational GeoSolids is a set of 14 three-dimensional shapes that can be used to teach about prisms, pyramids, spheres, cylinders, cones, and hemispheres. GeoSolids facilitate classroom demonstrations and experimentation. The shapes can be filled with water, sand, rice, or other materials to give students a concrete framework for the study of volume.
Snap Cubes [®] These cubes come in 10 different colors and can be snapped together to build rectangular prisms and other three-dimensional shapes. They can be used to help students develop spatial sense and learn about surface area and volume.
XY Coordinate Pegboard The XY Coordinate Pegboard can be used to graph coordinates in one, two, or four quadrants; to show translations of geometric figures; to display data in various forms; and to demonstrate numerous algebraic concepts and relationships.

Index

Boldface page numbers indicate when a manipulative is used in the Try It! activity.

Algeblocks® algebraic equivalencies, using the Distributive Property, 69 Distributive Property, 68 simplifying like terms, 60, 61, 65 variables x, x^2 , and constants, evaluating, 56, 57 Algebra Tiles™ simplifying like terms, 60, 64 AngLegs[®] constant perimeter and changing area. 95 draw polygons in the coordinate plane, 107 shapes in the coordinate plane, 106 Area changing, with constant perimeter, 94-97 of parallelograms and rectangles, compare, 90-93 of trapezoids, 102-105 of triangles and parallelograms, 98–101 Base Ten Blocks fractions and decimals, compare and order, 34 **Centimeter Cubes** area of rectangular solids, 114 distributions, 120 histograms, 129 mean, median, mode, and range, **125** Color Tiles constant perimeter, maximum area, 94 equations, multiply and divide, 80 expressions with a variable, 53 integers, represent, compare, and order, 27 mean, median, mode, and range, 124 ratio, using to solve a proportion, 17 **Common Core State Standards** 6.RP Ratios and Proportional Relationships, 6-19 6.RP.1, 8-11, 12-15 6.RP.2, 12-15 6.RP.3b, 12-15, 16-19 6.NS The Number System, 20-49 6.NS.1, 22-25 6.NS.5, 26-29

6.NS.6a, 26-29 6.NS.6b, 30-33 6.NS.6c, 26-29, 30-33, 34-37, 38-41, 42-45 6.NS.7a, 26-29 6.NS.7b, 26-29, 42-45 6.NS.7c, 46-49 6.NS.7d, 46-49 6.NS.8, 30-33 6.EE Expressions and Equations, 50-87 6.EE.2a, 52-55 6.EE.2c, 52-55, 56-59 6.EE.3, 60-63, 64-67, 68-71 6.EE.5, 72-75, 76-79, 80-83 6.EE.6, 52-55, 72-75, 76-79, 80-83 6.EE.7, 72-75, 76-79, 80-83 6.EE.9, 84-87 6.G Geometry, 88-117 6.G.1, 90-93, 94-97, 98-101, 102-105 6.G.3, 102-105, 106-109 6.G.4, 110-113, 114-117 6.SP Statistics and Probability, 118–131 6.SP.2, 120-123 6.SP.3, 124-127 6.SP.4, 120-123, 128-131 6.SP.5a, 120-123, 128-131 6.SP.5c, 124-127 Commutative Property of Addition, 60-63 Cuisenaire[®] Rods absolute value, 46, 47 equations with a variable, 73 equations, add and subtract, 77 multiplication and division equations, 81 proportions, 13 ratios, understanding, 8, 9 Deluxe Rainbow Fraction[®] Circles circle graphs, 129 Deluxe Rainbow Fraction[®] Squares dividing a fraction by a fraction, 22 **Distributive Property** addition, 64-67 multiplication, 68-71 Expressions and equations, 50-87

adding and subtracting equations, 76-79 algebraic equivalencies, using the Distributive Property, 68–71 equations with a variable, 72-75 expressions with a variable, write and evaluate, 52-55 multiplication and division equations, 80-83 patterns and function tables, 84-87 simplifying like terms, 60-63, 64-67 variables x, x^2 , and constants, understanding and evaluating, 56-59 Fraction Tower[®] Equivalency Cubes fraction division, 23 fractional numbers, estimating, 39 fractions and decimals, compare and order, 35 rational numbers, comparing, 42, **43** Function tables, 85 Geoboards area of a triangle compare areas of parallelograms and rectangles, 91 compare areas of triangles and parallelograms, 99 shapes in the coordinate plane, 106 Geometry, 88-117 area of a rectangular solid, 114-117 area of trapezoids, 102-105 compare areas of parallelograms and rectangles, 90-93 compare areas of triangles and parallelograms, 98-101 constant perimeter and changing area, 94-97 draw polygons in the coordinate plane, 106-109 nets, 110-113 Graphing 4 quadrants, 31 Number lines absolute value, position on, 47 fractions and decimals, compare and order, 35 fractions, position on, 39

integers, locations on, 27 rational numbers, position on, 43 Number system, 20-49 absolute value, 46-49 fraction division, 22-25 fractional numbers, estimating, 38–41 fractions and decimals, compare and order, 34-37 graphing, 4-quadrants of a coordinate plane, 30-33 integers, represent, compare, and order, 26-29 rational numbers, compare, 42–45 Pattern Blocks area of trapezoids, 102 area of a triangle, 98 proportions, 12 using patterns and function tables, 84, **85**

Rainbow Fraction[®] Circle Rings estimating fractional numbers, 38 Ratios and proportional relationships, 6–19 proportions, 12-15 ratios, understanding, 8-11 using ratio to solve a proportion, 16–19 Relational GeoSolids[®] area of rectangular solids, 114 nets, 110, 111 Snap Cubes[®] area of a rectangular solid, 115 equations, adding and subtracting, 76 nets, 110 Statistics and probability, 118-131 distributions, 120-123 histograms and circle graphs, 128–131

mean, median, mode, and range, 124-127 Tangrams area of parallelograms, 90 area of trapezoids, 102 Two-Color Counters equations, adding and subtracting, 76 equations with variables, 72 expressions with variables, 52 mean, median, mode, and range, 124 ratios, 8 XY Coordinate Pegboard area of trapezoids, 103 constant perimeter, maximum area, 94 distributions, 121 4-quadrant graphing, 30, 31 ratio and proportion, 16 variables and constants, 56