

# Expectations

## Entrance Expectations for

# Course 1

*What students should know as they begin Course 1*

### **Algebra**

- Are familiar with some relationships in tabular form such as input/output boxes
- Have some limited experience with variables

### **Geometry**

- Know the names of common geometric figures
- Identify figures with line symmetry
- Measure lengths and are familiar with both customary and metric measures of length
- Find the perimeter of figures with straight-line sides
- Find the areas of rectangles

### **Number and Operation**

- Are proficient with whole number arithmetic
- Are proficient with decimal addition and subtraction
- Have multiplied decimals but are not proficient
- Know the algorithm for finding equivalent fractions but may not understand why it works
- Are proficient with writing decimals as fractions
- Know decimal equivalents for  $\frac{1}{4}$ ,  $\frac{1}{2}$ , and  $\frac{3}{4}$  and for fractions with denominators that are powers of 10
- Add and subtract fractions with the same denominator
- Have been exposed to addition and subtraction of fractions with unlike denominators but may not be proficient
- Have been exposed to multiplication of fractions but are not proficient
- Have seen percents but know only simple things about them

### **Data and Probability**

- Interpret and create bar graphs and pictographs

## Exit Expectations for

# Course 1

## Entrance Expectations for

# Course 2

*What students should know as they finish Course 1;  
What students should know as they begin Course 2*

### **Algebra**

- Understand the concept of a variable
- Solve simple one- and two-step equations with the variable on one side only

### **Geometry**

- Understand area and perimeter and have committed important formulas to memory
- Give reasonable estimates for angle measures and measure angles with a protractor
- Plot points in the first quadrant

### **Number and Operation**

- Are proficient with fraction and decimal operations
- Move efficiently among fraction, decimal, and percent representations

### **Data and Probability**

- Conduct simple experiments to determine experimental probabilities
- Calculate theoretical probabilities in simple situations with a small number of equally likely outcomes
- Calculate measures of central tendency
- Interpret bar graphs, line graphs, circle graphs, line plots, and stem-and-leaf plots

*What students should know as they finish Course 2;  
What students should know as they begin Course 3*

## **Algebra**

- Write algebraic expressions to represent situations and patterns
- Apply the distributive property to expand expressions and to factor out a common monomial factor (includes combining like terms)
- Solve single-variable linear equations in which the variable appears on both sides (by doing the same thing to both sides)
- Recognize a linear relationship from a written description, a table, a graph, or an equation
- Have a thorough understanding of slope (rise/run, rate of change, constant change, and so on)

## **Geometry**

- Understand volume and surface and have important formulas committed to memory
- Understand and apply ideas about similarity and scale factor
- Understand and apply the relationship between scale factor, area, and volume
- Plot points in all four quadrants
- Apply the distance formulas

## **Number and Operation**

- Are proficient with operations with signed numbers
- Are proficient in working with positive and negative integer exponents
- Are proficient with percent operations, including calculating percent increase and percent decrease
- Understand ratios, rates, and proportions and solve problems that require comparing ratio or solving proportions

## **Data and Probability**

- Calculate probabilities in situations involving multipart outcomes (tossing four coins, spinning two spinners, and so on)
- Conduct simple simulations to find probabilities
- Interpret box plots
- Understand the purpose of sampling and the importance of selecting a random sample

# Exit Expectations for

# Course 3

*What students should know as they finish Course 3*

## **Algebra**

- Solve linear inequalities
- Solve linear systems
- Write a linear equation given two points or a point and a slope
- Understand how the graph of  $y = x^2$  is changed if a constant is added to  $x^2$  or if  $x^2$  is multiplied by a constant
- Recognize a quadratic relationship from a table, a graph, or an equation
- Multiply binomials
- Solve quadratic equations graphically, by using the quadratic formula and (in fairly simple cases) by factoring
- Understand the exponential growth pattern and recognize this pattern from a table, graph, or equation
- Understand inverse variation and recognize inverse variation from a table, graph, or equation
- Solve simple equations involving rational expressions and radical expressions
- Understand the meaning of function
- Use technology to graph functions and identify solutions to equations, maximum and minimum points, intercepts, and lines of symmetry

## **Geometry**

- Recognize and describe reflectional and rotational symmetry (including identifying lines of symmetry and specifying angles of rotation)
- Write and recognize algebraic rules for similarity transformations, translations, simple reflections (over the  $x$ -axis, over the  $y$ -axis, over the line  $y = x$ ), and simple rotations ( $90^\circ$ ,  $180^\circ$ ,  $270^\circ$ )

## **Number and Operation**

- Understand square roots and manipulate expressions involving square roots
- Understand the distinction between rational and irrational numbers

## **Data and Probability**

- Perform computations involving combinations or permutations
- Solve probability problems that require using combinatorics to count outcomes
- Fit a line to a set of linear data (by eyeballing) and then use the graph or equation of the line to make predictions