Scott County Pacing Guide
8th Grade Math

Intro Unit - 4 days
- School Procedures
- Classroom Procedures
- Review
- Team Building Activities

Chapter 1 - 13 days
- I can write rational numbers in equivalent forms
- I can multiply fractions, mixed numbers, and decimals
- I can divide fractions and decimals
- I can add and subtract fractions with unlike denominators
- I can solve equations with rational numbers
- I can solve two-step equations
Standard(s): CC.8.NS.1, CC.8.EE.7

Chapter 2 - 12 days
- I can write solutions of equations in two variables as ordered pairs
- I can graph points on the coordinate plane
- I can interpret information given in a graph and make a graph to model a situation
- I can represent functions with tables, graphs, or equations and recognize that there is only one output per every input.
- I can generate different representations of the same data
Standard(s): CC.8.F.1, CC.8.F.2, CC.8.F.5

Chapter 3 - 31 days
- I can evaluate expressions with negative exponents and evaluate the zero exponent
- I can apply the properties of exponents
- I can create different equivalent expression of exponents
- I can express large and small numbers in scientific notation and compare two numbers written in scientific notation
- I can operate with scientific notation in real-world situations
- I can find square roots and cube roots (additional resources for cubes)
- I can estimate square roots to a given number of decimal places and solve problems using square roots
- I can determine if a number is rational or irrational
- I can use the Pythagorean theorem to solve problems and real world situations
- I can use the distance formula and the pythagorean theorem and its converse to solve problems
- I can use the pythagorean theorem to recognize cross-sections and diagonals of two dimensional shapes
Chapter 4 - 15 days
- I can work with rates and ratios
- I can solve proportions
- I can determine whether figures are similar and find missing dimensions in similar figures
- I can identify and create dilations of plane figures
Standard(s): CC.8.G.3, CC.8.G.4

Chapter 5 - 24 days
- I can classify angles and find their measures
- I can identify parallel and perpendicular lines and the angles formed by transversal
- I can find unknown angles and identify possible side lengths in triangles
- I can identify polygons and midpoints of segments in the coordinate plane
- I can use properties of congruent figures to solve problems
- I can transform plane figures using translations, rotations, and reflections
- I can identify transformations as similarity or congruence transformations
- I can identify the image of a figure after a combined transformation is performed, and determine whether the final image is similar or congruent to the original

Chapter 6 - 14 days
- I can find the circumference and area of circles
- I can find the volume of prisms and cylinders
- I can find the volume of pyramids and cones
- I can find the volume and surface area of spheres
Standard(s): CC.8.G.9

Chapter 7 - 14 Days
- I can combine like terms in an expression
- I can solve multi-step equations
- I can solve equations with variables on both sides of the equal sign, recognizing when it is a one solution, no solution and infinitely many solutions/all real numbers.
- I can solve systems of equations, recognizing when it is a one solution, no solution and infinitely many solutions/all real numbers.
Standard(s): CC.8.EE.7, CC.8.EE.8

Chapter 8 - 19 Days
- I can identify and graph linear equations
- I can use points on the graph of a line and right triangles to explore the slope of a line (Use the Hands-on LAB on pg. 343 to address CC.8.EE.6)
- I can find the slope of a line and use slope to understand and draw graphs in various representations
- I can compare two different proportional relationship, represented in two different ways and determine the unit rate of a proportional relationship
- I can use slopes and intercepts to graph linear equations in various representations
- I can find the equation of a line given one point and the slope, a graph and a table
- I can recognize direct variation by graphing tables of data checking for constant ratios
- I can recognize that direct variations and unit rates are a different way of representing proportional relationships.
- I can graph and solve systems of linear equations and prove by checking the solution.
- I can write the equations of the lines and determine if they are intersecting or no solution when given two sets of points. (supplementary materials)


Chapter 9 - 9 days
- I can create and interpret scatter plots (bivariate measurement data)
- I can identify patterns in scatter plots, and informally fit and use a linear model to solve problems and make predictions as appropriate (line of best fit, clustering)
- I can identify and write linear functions
- I can compare linear functions represented in multiple representations
- I can compare two sets of data and determine a pattern including slope correlations and tables.

Scott County Pacing Guide
8th Grade Pre-Algebra

Unit 1--3 weeks
Integers
Rational Numbers
Irrational Numbers
**Standards 8.NS.1, 8.NS.2, 8.EE.2

Unit 2--4 weeks
Solving equations in one variable
Proportions
Unit rates
Solving equations with square and cube roots
**Standards 8.EE.7a, 8.EE.7b, 8.EE.2

Unit 3--3 weeks
“Geometry A”
Angle Properties
Similar Triangles
Volumes
**Standards 8.G.5, 8.G.9

Unit 4--3 weeks
Slope
Rate of Change
Proportional relationships (graphing and analyzing)
**Standards 8.EE.5, 8.EE.6, 8.F.4

Unit 5--5 weeks
Functions
Function Notation
**Standards 8.F.1, 8.F.2, 8.F.3, 8.F.5

Unit 6--2 weeks
“Geometry B”
Pythagorean Theorem
Distance Formula
**Standards 8.G.6, 8.G.7, 8.G.8

Unit 7--3 weeks
Rules/Properties of Integer Exponents
Scientific Notation
Operations with Scientific Notation
**Standards 8.EE.1, 8.EE.3, 8.EE.4

Unit 8--3 weeks
“Geometry C”
Transformations
Similar and Congruent Figures (how made from transformations)
**Standards 8.G.1a, 8.G.1b, 8.G.1c, 8.G.2, 8.G.3, 8.G.4

Unit 9--3 weeks
Systems of Equations--graphing, solving algebraically, real world situations
**Standards 8.EE.8a, 8.EE.8b, 8.EE.8c

Unit 10--3 weeks
Statistics and Probability--scatter plots, frequencies, relative frequencies
Two way tables (HOLT McDougal 9-2, Pg 396-397
**Standards 8.SP.1, 8.SP.2, 8.SP.3, 8.SP.4

TESTING/END OF YEAR ACTIVITIES--4 weeks
Chapter 1 - 17 days

- I can translate between words and algebra and evaluate algebraic expressions
- I can solve one-step equations in one variable by using addition or subtraction
- I can solve one-step equations in one variable by using multiplication or division
- I can solve equations in one variable that contain more than one operation
- I can solve equations in one variable that contain variable terms on both sides
- I can solve a formula for a given variable
- I can solve equations in one variable that contain absolute-value expressions
- I can write and use ratios, rates, and unit rates
- I can write and solve proportions
- I can use proportions to solve problems involving geometric figures
- I can use proportions and similar figures to measure objects indirectly
- I can analyze and compare measurements for precision and accuracy
- I can choose an appropriate level of accuracy when reporting measurements

A.REI.1, A.REI.3, A.REI.11, A.CED.4, A.CED.1, A.SSE.1, N.Q.1, N.Q.3

Chapter 2 - 13 days

- I can identify solutions of inequalities in one variable.
- I can write and graph inequalities in one variable.
- I can solve one-step inequalities using inverse operations. (addition, subtraction, multiplication, and division)
- I can solve inequalities that contain more than one operation.
- I can solve inequalities that contain variable terms on both sides of the inequality.
- I can graph solution sets of compound inequalities in one variable.
- I can solve inequalities in one variable involving absolute value expressions.

A.REI.3

Chapter 3 - 14 days

- I can recognize and extend an arithmetic sequence.
- I can find a given term of an arithmetic sequence.
- I can match simple graphs with situations.
- I can graph a relationship.
- I can identify functions.
- I can find the domain and range of relations and functions.
- I can use models to represent algebraic relationships.
- I can identify independent and dependent variables.
- I can write an equation in function notation and evaluate a function for given input values.
- I can graph functions given a limited domain.
- I can graph functions given a domain of ALL real numbers.
- I can use a graphing calculator to make the connections among equations, tables and graphs.
- I can create and interpret scatter plots.
- I can use a trend line to make predictions.
- I can use a graphing calculator to graph a trend line (line of best fit) on a scatter plot.
Chapter 4 - 20 days
- I can identify linear functions and linear equations.
- I can graph linear functions that represent real-world situations and give their domain and range.
- I can find x and y intercepts and interpret their meanings in real-world situations.
- I can use x and y intercepts to graph lines.
- I can apply algebra skills to finding areas of geometric figures in the coordinate plane.
- I can find rates of change and slopes.
- I can relate a constant rate of change to the slope of a line.
- I can explore the relationship between constant change and the slope of a line.
- I can find slope by using the slope formula.
- I can identify write and graph a direct variation.
- I can write a linear equation in slope-intercept form.
- I can graph a line using slope-intercept form.
- I can graph a line and write a linear equation using point-slope form.
- I can write a linear equation given two points.
- I can use a graphing calculator to graph lines.
- I can determine a line of best fit for a set of data.
- I can determine and interpret the correlation coefficient.
- I can identify and graph parallel and perpendicular lines.
- I can write equations to describe lines parallel and perpendicular to a given line.
- I can describe how changing slope and y-intercept affect the graph of a linear function.

Chapter 5 - 15 days
- I can identify solutions of systems of linear equations in two variables.
- I can solve systems of linear equations in two variables by graphing
- I can solve systems of linear equations in two variables by substitution
- I can solve systems of linear equations in two variables by elimination
- I can compare and choose an appropriate method for solving systems of linear equations
- I can solve special systems of linear equations in two variables
- I can classify systems of linear equations and determine the number of solutions
- I can graph and solve linear inequalities in two variables
- I can graph and solve systems of linear inequalities in two variables

Chapter 6 - 14 days
- I can evaluate expressions containing zero and integer exponents
- I can simplify expressions containing zero and integer exponents
- I can evaluate and simplify expressions containing rational exponents
- I can classify polynomials and write polynomials in standard form
- I can evaluate polynomial expressions
- I can add and subtract polynomials
- I can multiply polynomials
- I can find special products of binomials

N.RN.1, A.SSE.1a, A.APR.1

Chapter 7 - 16 days

- I can write the prime factorization of numbers
- I can find the GCF of monomials
- I can factor polynomials by using the greatest common factor
- I can factor quadratic trinomials of the form \(x^2 + bx + c\)
- I can factor quadratic trinomials of the form \(ax^2 + bx + c\)
- I can factor perfect-square trinomials
- I can factor the difference of two squares
- I can choose an appropriate method for factoring a polynomial
- I can combine methods for factoring a polynomial

A.SSE.2, A.SSE.3a

Chapter 8 - 18 days

- I can identify quadratic functions and determine whether they have a minimum or maximum
- I can graph a quadratic function and give its domain and range
- I can find the zeros of a quadratic function from its graph.
- I can find the axis of symmetry and the vertex of a parabola
- I can graph a quadratic function in the form \(y = ax^2 + bx + c\)
- I can graph and transform quadratic functions
- I can solve quadratic equations by graphing
- I can solve quadratic equations by factoring
- I can solve quadratic equations by using square roots
- I can solve quadratic equations by completing the square
- I can solve quadratic equations by using the quadratic formula
- I can determine the number of solutions of a quadratic equation by using the discriminant
- I can solve systems of equations in two variables in which one equation is linear and the other is quadratic

F.IF.7, F.BF.3, A.REI.11, A.REI.4b, A.REI.4a, A.REI.7, F.IF.7c

Chapter 10 - 19 Days

- I can organize data in tables and graphs
- I can choose a table or graph to display data
- I can create stem-and-leaf plots
- I can create frequency tables and histograms
- I can describe the central tendency of a data set
- I can create and interpret box-and-whisker plots
- I can recognize misleading graphs
I can recognize misleading statistics
I can determine the experimental probability of an event
I can use experimental probability to make predictions
I can determine the theoretical probability of an event
I can convert between probabilities and odds
I can find the probability of independent events
I can find the probability of dependent events

S.ID.1, S.ID.2, S.ID.3, S.IC.6, S.CP.1, S.IC.1, S.CP.2, S.CP.7

***Geometry review for 8th grade testing - 10 days***

Chapter 9 - 15 Days
- I can recognize and extend geometric sequences
- I can find the nth term of a geometric sequence
- I can evaluate exponential functions
- I can identify and graph exponential functions
- I can solve problems involving exponential growth and decay
- I can compare linear, quadratic, and exponential models
- I can decide which type of function models the data and write an equation to describe the function, when given a set of data.
- I can compare functions in different representations
- I can estimate and compare rates of change

F.IF.3, F.IF.7e, F.LE.2, F.IF.3, F.LE.1, F.IF.6, F.IF.9
### Expressions and Equations

Know and apply the properties of integer exponents to generate equivalent numerical expressions. *For example,* $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Standard</th>
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<tbody>
<tr>
<td>Expressions and Equations</td>
<td>Know and apply the properties of integer exponents to generate equivalent numerical expressions. <em>For example,</em> $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.</td>
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<tr>
<td>Cluster</td>
<td>Work with radicals and integer exponents.</td>
</tr>
</tbody>
</table>

### Target Type

<table>
<thead>
<tr>
<th>Target Type</th>
<th>State Target</th>
<th>Student Friendly Target</th>
</tr>
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<tbody>
<tr>
<td>K</td>
<td>Explain the properties of integer exponents to generate equivalent numerical expressions. <em>For example,</em> $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.</td>
<td>I can explain the properties of negative exponents as numbers with positive exponents and create different equivalent expressions using integer exponents. This means that I can express $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.</td>
</tr>
<tr>
<td></td>
<td>Apply the properties of integer exponents to produce equivalent numerical expressions.</td>
<td>I can apply the properties of negative exponents to create different equivalent expressions using integer exponents. This means that I can express $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.</td>
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### Domain

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<tr>
<td>Expressions and Equations</td>
<td>Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where $p$ is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that the square root of 2 is irrational.</td>
</tr>
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<tr>
<td>K</td>
<td>Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where $p$ is a positive rational number.</td>
<td>I can solve equations with powers of 2 or 3. This means I can use square roots and cube roots to solve equations of the form $x^2 = p$ and $x^3 = p$, where $p$ is a positive rational number.</td>
</tr>
<tr>
<td>K</td>
<td>Evaluate square roots of small perfect squares.</td>
<td>I can evaluate square roots of small perfect squares. This means I can determine the solutions to square roots whose solutions are whole numbers.</td>
</tr>
<tr>
<td>K</td>
<td>Evaluate cube roots of small perfect cubes.</td>
<td>I can evaluate cube roots of small perfect cubes. This means I can determine the solutions to cube roots whose solutions are whole numbers.</td>
</tr>
<tr>
<td>K</td>
<td>Know that the square root of 2 is irrational.</td>
<td>I know that the square root of 2 is irrational. This means I know that the square roots of 2 is a non-terminating, non-repeating decimal.</td>
</tr>
</tbody>
</table>
Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. For example, estimate the population of the United States as $3 \times 10^8$ and the population of the world as $7 \times 10^9$, and determine that the world population is more than 20 times larger.
Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.

I can operate (+, -, X, /) with numbers expressed in scientific notation. This means I can add, subtract, multiply and divide numbers that are already written in scientific notation.

I can rewrite very large and very small using scientific notation. This means I can express 45 million as $4.5 \times 10^7$.

I can choose units of measure that best match the problem given when using scientific notation. This means when working with speed and scientific notation very small quantities could be expressed as feet per second and very large quantities could be expressed as miles per hour.

I can recognize scientific notation on any technological device. This means I can interpret a calculator output of $3E-4$ is expressed as $3 \times 10^{-4}$ or 0.0003.
### Domain
- **Expressions and Equations**

### Cluster
Understand the connections between proportional relationships, lines, and linear equations.

### Standard
Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.*

### Target Type
- **K**
  - **State Target:** Graph proportional relationships.
  - **Student Friendly Target:** I can use x and y coordinates to graph proportional relationships. This means I can plot coordinates.

- **R**
  - **State Target:** Compare two different proportional relationships represented in different ways. *(For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.)*
  - **Student Friendly Target:** I can compare two different proportional relationships represented in two different ways. This means I can convert proportional relationships from one representation to another and compare them.

  - **State Target:** Interpret the unit rate of proportional relationships as the slope of the graph.
  - **Student Friendly Target:** I can determine unit rate (slope) of a proportional relationship. This means I understand that the unit rate is the slope.

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**Mathematical Practices**
- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Use appropriate tools strategically.
- Attend to precision.
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.
### Domain: Expressions and Equations

#### Cluster: Understand the connections between proportional relationships, lines, and linear equations.

| Standard | Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.* |

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<tr>
<td>K</td>
<td>Identify characteristics of similar triangles.</td>
<td>I can identify characteristics of similar triangles. This means I know the characteristics of similar triangles.</td>
</tr>
<tr>
<td></td>
<td>Find the slope of a line.</td>
<td>I can find the slope of a line. This means I know how to determine slope.</td>
</tr>
<tr>
<td></td>
<td>Determine the y-intercept of a line.</td>
<td>I can find the y-intercept of a line. This means I know how to determine the y-intercept. <em>(Interpreting unit rate as the slope of the graph is included in 8.EE.)</em></td>
</tr>
<tr>
<td>R</td>
<td>Analyze patterns for points on a line through the origin.</td>
<td>I can analyze patterns for points on a line through the origin. This means I can analyze linear patterns.</td>
</tr>
<tr>
<td></td>
<td>Derive an equation of the form $y=mx$ for a line through the origin.</td>
<td>I can write an equation for line that passes through the origin. This means I understand that the equation in the form of $y=mx$ has a y-intercept of zero.</td>
</tr>
<tr>
<td>Analyze patterns for points on a line that do not pass through or include the origin.</td>
<td>I can analyze patterns for points on a line that do not pass through or include the origin. This means I can analyze linear patterns.</td>
<td></td>
</tr>
<tr>
<td>---</td>
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<td></td>
</tr>
<tr>
<td>Derive an equation of the form $y=mx+b$ for a line intercepting the vertical axis at $b$ (the y-intercept).</td>
<td>I can write an equation for line that intercepts the y-axis. This means I can determine the slope and y-intercept of a line and use them to write the equation in the form of $y=mx+b$.</td>
<td></td>
</tr>
<tr>
<td>Use similar triangles to explain why the slope $m$ is the same between any two distinct points on a non-vertical line in the coordinate plane.</td>
<td>I can use similar triangles to explain why the slope is the same between any two points on a line. This means I can use the rise and the run of slope and similar triangles to show the slope is the same for any two points.</td>
<td></td>
</tr>
</tbody>
</table>

Scott County Schools  Grade 8  Mathematics
### Domain
Expressions and Equations

### Standard
Solve linear equations in one variable:

a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form \( x = a, a = a, \) or \( a = b \) results (where \( a \) and \( b \) are different numbers).

b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.

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<tr>
<td>K</td>
<td>I can give examples of linear equations in one variable with one solution. This means I can show that the given example equation has one solution by successively transforming the equation into an equivalent equation of the form ( x = a. )</td>
</tr>
<tr>
<td></td>
<td>I can give examples of linear equations in one variable with infinitely many solutions. This means I show that the given example has infinitely many solutions by successively transforming the equation into an equivalent equation of the form ( a = a. )</td>
</tr>
<tr>
<td></td>
<td>I can give examples of linear equations in one variable with no solution. This means I can show that the given example has no solution by successively transforming the equation into an equivalent equation of the form ( b = a. )</td>
</tr>
<tr>
<td>Make sense of problems and persevere in solving them.</td>
<td>Reason abstractly and quantitatively.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>where a and (b) are different numbers.</td>
<td>the form (b=a), where a and (b) are different numbers.</td>
</tr>
</tbody>
</table>
### Expressions and Equations

#### Cluster

Analyze and solve linear equations and pairs of simultaneous linear equations.

#### Standard

Analyze and solve pairs of simultaneous linear equations:

- **a.** Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.
- **b.** Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6.
- **c.** Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.

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<tr>
<td><strong>K</strong></td>
<td>Identify the solution(s) to a system of two linear equations in two variables as the point(s) of intersection of their graphs.</td>
<td>I can identify the solutions to a system of two linear equations graphically. This means I can identify the point of intersection of the two lines as the solution for the system of equations.</td>
</tr>
<tr>
<td></td>
<td>Describe the point(s) of intersection between two lines as points that satisfy both equations simultaneously.</td>
<td>I can show that the intersection point(s) of two lines is a solution for both equations. This means I can demonstrate algebraically that the intersection point(s) are solution(s) for the system of equations.</td>
</tr>
<tr>
<td></td>
<td>Define “inspection.”</td>
<td>I can define inspection. This means I understand inspection when working with systems of equations.</td>
</tr>
<tr>
<td></td>
<td>Identify cases in which a system of two equations in two unknowns has no solution.</td>
<td>I can identify systems of equations that have no solutions. This means I can identify when no ordered pairs satisfy both equations</td>
</tr>
</tbody>
</table>

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**Scott County Schools**  
**Grade 8**  
**Mathematics**
<table>
<thead>
<tr>
<th>Identify cases in which a system of two equations in two unknowns has an infinite number of solutions.</th>
<th>I can identify systems of equations that have infinite solutions. This means I can identify when all ordered pairs for one equation are also solutions for the other equations.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solve a system of two equations (linear) in two unknowns algebraically.</td>
<td>I can solve a system of equations algebraically. This means I can use algebraic methods to solve a system of equations.</td>
</tr>
<tr>
<td>Solve simple cases of systems of two linear equations in two variables by inspection.</td>
<td>I can solve simple cases of systems of equations by inspection. This means I can analyze a simple system of equations and determine if the solution.</td>
</tr>
<tr>
<td>Solve systems of two linear equations in two unknowns.</td>
<td>I can solve systems of linear equations. This means I can solve two linear equations with variables x and y.</td>
</tr>
<tr>
<td>Define the terms “system of equations” and “simultaneous linear equations”</td>
<td>I can define the terms “system of equations” and “simultaneous linear equations.” This means I know the definition of systems of equations and simultaneous linear equations.</td>
</tr>
<tr>
<td>Estimate the point(s) of intersection for a system of two equations in two unknowns by graphing the equations.</td>
<td>I can estimate the points of intersection for a system of equations by graphing. This means I can graph a system of equations to determine their approximate solution.</td>
</tr>
<tr>
<td>Apply rules for solving systems of two equations in two unknowns to mathematical problems.</td>
<td>I can use the rules for solving systems of equations. This means I can use elimination, substitution, multiplication or addition/subtraction to solve systems of equations.</td>
</tr>
<tr>
<td>Analyze real-world problems that lead to two linear equations in two variables by extracting needed information and translating words to symbols.</td>
<td>I can solve a real world problem that requires the use a system of equations. This means I can write the equations for a system from a real world problem and solve for the unknowns.</td>
</tr>
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### Domain
- **Functions**

### Standard
Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.

### Cluster
- **Define, evaluate, and compare functions**

<table>
<thead>
<tr>
<th>Target Type</th>
<th>State Target</th>
<th>Student Friendly Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>Examine the correspondence or relationship between input and output values in a set of ordered pairs and identify functions as those for which each input has only one output.</td>
<td>I can recognize the connection between x and y values in a set of ordered pairs and identify sets of ordered pairs as functions or non-functions. This means I know that for every x value there is only one y value and the relationship between x and y creates the function.</td>
</tr>
<tr>
<td></td>
<td>Recognize the graph of a function as a set of ordered pairs consisting of an input value and the corresponding output value.</td>
<td>I can identify the x- and y-coordinates that correspond to the graph of the function. This means I can identify sets of ordered pairs that are represented by the graph of the function.</td>
</tr>
</tbody>
</table>
**Domain:** Functions  
**Cluster:** Define, evaluate, and compare functions

**Standard:** Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>Identify functions algebraically including slope and y intercept.</td>
<td>I can identify functions using slope and y-intercept. This means I can use slope and y-intercept (y=mx+b) to identify a function.</td>
</tr>
<tr>
<td></td>
<td>Identify functions using graphs.</td>
<td>I can identify functions using graphs. This means I can analyze a graph and determine it’s function.</td>
</tr>
<tr>
<td></td>
<td>Identify functions using tables.</td>
<td>I can identify functions using tables. This means I can analyze a table of x and y values and determine their function.</td>
</tr>
<tr>
<td></td>
<td>Identify functions using verbal descriptions.</td>
<td>I can identify functions using verbal descriptions. This means I can create a function from it’s verbal description.</td>
</tr>
<tr>
<td>R</td>
<td>Compare and Contrast 2 functions with different representations.</td>
<td>I can compare and contrast two functions with different representations. This means I can change functions from one representation to another and then compare and contrast their properties.</td>
</tr>
<tr>
<td></td>
<td>Draw conclusions based on different representations of functions.</td>
<td>I can draw conclusions based on different representations of functions. This means I can analyze any representation of functions and determine their meaning.</td>
</tr>
</tbody>
</table>

Scott County Schools  
Grade 8  
Mathematics
Interpret the equation $y=mx+b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function $A=s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4), and (3,9), which are not on a straight line.

I can recognize that a linear function is graphed as a straight line. This means I know that x- and y-coordinates for a given linear function will create a straight line on the coordinate plane.

I can recognize the slope (m) and the y-intercept (b) in the linear equation $y=mx+b$ whose graph makes a straight line. This means I can identify slope-intercept form and it’s components and understand that it’s graph makes a straight line.

I can provide examples of functions that are not linear. This means I can give multiple representations of examples of nonlinear functions.

I can compare the characteristics of linear and nonlinear functions using various representations. This means I can use the characteristics of functions, in various representations, to compare linear and nonlinear functions.
## Domain: Functions

### Cluster: Use functions to model relationships between quantities.

<table>
<thead>
<tr>
<th>Target</th>
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</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>Recognize that slope is determined by the constant rate of change.</td>
<td>I can recognize that slope is the rate of change. This means that I know what slope means and know how to calculate it.</td>
</tr>
<tr>
<td></td>
<td>Recognize that the y-intercept is the initial value where x=0.</td>
<td>I can recognize that the coordinate that the x-coordinate of the y-intercept is zero. This means I know that when the graph crosses the y-axis the x-coordinate is zero.</td>
</tr>
<tr>
<td></td>
<td>Determine the rate of change from two (x, y) values, a verbal description, values in a table, or graph.</td>
<td>I can calculate slope from various representations of two (x, y) values. This means I can find the slope of a line from many representations.</td>
</tr>
<tr>
<td></td>
<td>Determine the initial value from two (x, y) values, a verbal description, values in a table, or graph.</td>
<td>I can find the y-intercept from various representations. This means I can calculate the y-intercept from many representations.</td>
</tr>
<tr>
<td>R</td>
<td>Construct a function to model a linear relationship between two quantities.</td>
<td>I can write a linear equation to represent the given function. This means given a relationship between two variables I can write linear equation.</td>
</tr>
<tr>
<td></td>
<td>Relate the rate of change and initial value to real world quantities in a linear function in terms of the situation modeled and in terms of its graph or a table of values.</td>
<td>I can relate the slope and y-intercept to real world problems in various representations. This means I can use the slope and y-intercept to model real life situations in any form.</td>
</tr>
</tbody>
</table>

---

**Scott County Schools**  
**Grade 8**  
**Mathematics**
### Domain: Functions

#### Cluster: Use functions to model relationships between quantities.

**Standard:** Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

<table>
<thead>
<tr>
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</tr>
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<tbody>
<tr>
<td>K</td>
<td>Analyze a graph and describe the functional relationship between two quantities using the qualities of the graph.</td>
<td>I can analyze a graph and describe the relationship between two quantities. This means I understand the functional relationship between the two quantities given it’s graph.</td>
</tr>
<tr>
<td></td>
<td>Sketch a graph given a verbal description of its qualitative features.</td>
<td>I can use a verbal description to sketch a graph. This means I can use the features of the verbal description to create the graph.</td>
</tr>
<tr>
<td>R</td>
<td>Interpret the relationship between x and y values by analyzing a graph.</td>
<td>I can describe the relationship between x and y given the graph. This means I understand how x and y affect each other on the graph.</td>
</tr>
</tbody>
</table>
Verify experimentally the properties of rotations, reflections, and translations:

a. Lines are taken to lines, and line segments to line segments of the same length.
b. Angles are taken to angles of the same measure.
c. Parallel lines are taken to parallel lines.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Standard</th>
</tr>
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<tbody>
<tr>
<td>Geometry</td>
<td>Verify experimentally the properties of rotations, reflections, and translations:</td>
</tr>
<tr>
<td></td>
<td>a. Lines are taken to lines, and line segments to line segments of the same length.</td>
</tr>
<tr>
<td></td>
<td>b. Angles are taken to angles of the same measure.</td>
</tr>
<tr>
<td></td>
<td>c. Parallel lines are taken to parallel lines.</td>
</tr>
</tbody>
</table>

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</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>Define &amp; identify rotations, reflections, and translations.</td>
<td>I can define and identify rotations, reflections and translations. This means I can define and identify transformations.</td>
</tr>
<tr>
<td></td>
<td>Identify corresponding sides &amp; corresponding angles.</td>
<td>I can identify corresponding sides and corresponding angles. This means I can identify corresponding parts.</td>
</tr>
<tr>
<td></td>
<td>Understand prime notation to describe an image after a translation, reflection, or rotation.</td>
<td>I can use prime notation to denote a transformation. This means I can use prime notation to describe an image after a translation, reflection, or rotation</td>
</tr>
<tr>
<td></td>
<td>Identify center of rotation.</td>
<td>I can identify the center of rotation. This means I can find the point about which a figure is rotated.</td>
</tr>
<tr>
<td></td>
<td>Identify direction and degree of rotation.</td>
<td>I can identify the direction and degree of rotation. This means I can identify whether the figure was rotated clockwise or counterclockwise as well as how far it was rotated.</td>
</tr>
<tr>
<td>R</td>
<td>Identify line of reflection.</td>
<td>I can identify the line of reflection. This means I can determine the line of reflection of a figure.</td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Use physical models, transparencies, or geometry software to verify the properties of rotations, reflections, and translations (ie. Lines are taken to lines and line segments to line segments of the same length, angles are taken to angles of the same measure, &amp; parallel lines are taken to parallel lines.)</td>
<td>I can use manipulatives to verify the properties of transformations. This means I can use physical models, transparencies or technology to demonstrate the properties of rotations, reflections and translations.</td>
</tr>
</tbody>
</table>

| Make sense of problems and persevere in solving them. | Reason abstractly and quantitatively. | Construct viable arguments and critique the reasoning of others. | Model with mathematics. | Use appropriate tools strategically. | Attend to precision. | Look for and make use of structure. | Look for and express regularity in repeated reasoning. |
## Domain: Geometry

### Cluster: Understand congruence & similarity using physical models, transparencies, or geometry software.

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>K</strong></td>
<td>Define congruency.</td>
<td>I can define congruency. This means I understand that congruent figures have the same size and shape.</td>
</tr>
<tr>
<td></td>
<td>Identify symbols for congruency.</td>
<td>I can identify symbols for congruency. This means I can write and use symbols for congruency appropriately.</td>
</tr>
<tr>
<td><strong>R</strong></td>
<td>Apply the concept of congruency to write congruent statements.</td>
<td>I can use the concept of congruency to write congruent statements. This means I can use geometry symbols to show when two figures are congruent.</td>
</tr>
<tr>
<td></td>
<td>Reason that a 2-D figure is congruent to another if the second can be obtained by a sequence of rotations, reflections, translation.</td>
<td>I can explain that two figures are congruent using transformations. This means I can transform one figure into a second figure to prove their congruency.</td>
</tr>
<tr>
<td></td>
<td>Describe the sequence of rotations, reflections, translations that exhibits the congruence between 2-D figures using words.</td>
<td>I can create a geometry proof using transformations to show two figures are congruent. This means I can put into words the explanation of how a transformation demonstrates congruency of two figures.</td>
</tr>
</tbody>
</table>

### Standards

- Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.

---

**Scott County Schools**

**Grade 8**

**Mathematics**
<table>
<thead>
<tr>
<th>Domain</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geometry</td>
<td>Describe the effect of dilatations, translations, rotations, and reflections on two-dimensional figures using coordinates.</td>
</tr>
<tr>
<td>Cluster</td>
<td>Understand congruence &amp; similarity using physical models, transparencies, or geometry software.</td>
</tr>
</tbody>
</table>

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</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>Define dilations as a reduction or enlargement of a figure.</td>
<td>I can define a dilation as a reduction or enlargement of a figure. This means I know the dilation of a figure makes it smaller or larger.</td>
</tr>
<tr>
<td></td>
<td>Identify scale factor of the dilation.</td>
<td>I can identify the scale factor of the dilation. This means given the coordinates of the pre-image and image I can determine the scale factor of the dilation.</td>
</tr>
<tr>
<td>R</td>
<td>Describe the effects of dilations, translations, rotations, &amp; reflections on 2-D figures using coordinates.</td>
<td>I can use coordinates to describe the effects of transformations. This means I can describe the effects of dilations, translations, rotations and reflections on a figure.</td>
</tr>
</tbody>
</table>

Scott County Schools       Grade 8       Mathematics
Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.

I can define similar figures. This means I understand that similar figures have congruent angles and their sides are proportional.

I can recognize the symbol for similar. This means I can appropriately identify and use the symbol for similarity.

I can use the concept of similarity to write similarity statements. This means I can use geometry symbols to show when two figures are similar.

I can explain that two figures are similar using transformations. This means I can transform one figure into a second figure to prove their similarity.

I can create a geometry proof using transformations to show two figures are similar. This means I can put into words the explanation of how a transformation demonstrates similarity of two figures.
### Domain
- **Geometry**

### Cluster
- Understand congruence & similarity using physical models, transparencies, or geometry software.

### Standard
Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. For example, arrange three copies of the same triangle so that the three angles appear to form a line, and give an argument in terms of transversals why this is so.

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<tbody>
<tr>
<td>K</td>
<td>Define similar triangles</td>
<td>I can define similar triangles. This means I know the characteristics of similar triangles.</td>
</tr>
<tr>
<td></td>
<td>Define and identify transversals</td>
<td>I can define and identify transversals. This means I know a transversal crosses two or more other lines.</td>
</tr>
<tr>
<td></td>
<td>Identify angles created when parallel line is cut by transversal (alternate interior, alternate exterior, corresponding, vertical, adjacent, etc.)</td>
<td>I can identify angles created when a transversal crosses parallel lines. This means I can identify the line and angle relationships created by a transversal crossing parallel lines.</td>
</tr>
<tr>
<td>R</td>
<td>Justify that the sum of interior angles of a triangle equals 180 &amp; the sum of exterior angles equals 360</td>
<td>I can prove that the sum of the interior angles equals 180 and the sum of the exterior angles equals 360.</td>
</tr>
<tr>
<td></td>
<td>Justify that the exterior angle of a triangle is equal to the sum of the two remote interior angles</td>
<td>I can prove that the exterior angle of one angle of a triangle is equal to the sum of the other two interior angles.</td>
</tr>
<tr>
<td></td>
<td>Use Angle-Angle Criterion to prove similarity among triangles</td>
<td>I can use the angle-angle argument to prove triangles are similar. This means I can use congruent angle measurements for separate triangles to prove they are similar.</td>
</tr>
</tbody>
</table>
### Domain
Geometry

### Cluster
Understand and apply the Pythagorean theorem.

### Standard
Explain a proof of the Pythagorean Theorem and it’s converse.

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>K</td>
<td>Define key vocabulary: square root, Pythagorean Theorem, right triangle, legs a &amp; b, hypotenuse, sides, right angle, converse, base, height, proof.</td>
<td>I can define key geometry vocabulary: square root, Pythagorean Theorem, right triangle, legs a &amp; b, hypotenuse, sides, right angle, converse, base, height, proof. This means I can define vocabulary related to the right triangle.</td>
</tr>
<tr>
<td></td>
<td>Be able to identify the legs and hypotenuse of a right triangle.</td>
<td>I can identify the parts of a right triangle. This means I can identify the legs and hypotenuse of a right triangle.</td>
</tr>
<tr>
<td></td>
<td>Explain the Pythagorean Theorem.</td>
<td>I can explain the Pythagorean Theorem. This means I know the Pythagorean Theorem is $a^2 + b^2 = c^2$, where a &amp; b are legs and c is the hypotenuse.</td>
</tr>
<tr>
<td></td>
<td>Explain the converse of the Pythagorean Theorem.</td>
<td>I can determine if a triangle is right, given the length of the three sides. This means I can use $a^2 + b^2 = c^2$ to determine if a triangle is a right triangle.</td>
</tr>
</tbody>
</table>
Make sense of problems and persevere in solving them.

Reason abstractly and quantitatively.

Construct viable arguments and critique the reasoning of others.

Model with mathematics.

Use appropriate tools strategically.

Attend to precision.

Look for and make use of structure.

Look for and express regularity in repeated reasoning.

---

Domain: Geometry
Cluster: Understand and apply the Pythagorean theorem.

Standard: Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.

**Target Type** |
---
K: Recognize Pythagorean Theorem and when to use it in 2 and 3 dimensions.
R: Solve basic mathematical Pythagorean Theorem problems to find missing lengths of sides of triangles in two and three-dimensions.

**State Target**

K: Recognize cross-sections of three-dimensional shapes.
R: Think critically about how to apply Pythagorean Theorem in solving real-world problems dealing with two and three-dimensional shapes.

**Student Friendly Target**

K: I can recognize when to use the Pythagorean Theorem to solve for area and volume. This means I can use the Pythagorean Theorem to find unknown values necessary to solve for area and volume.
R: I can use the Pythagorean Theorem to find missing lengths on a right triangle in two- and three-dimensional figures. This means I can find unknown lengths using the Pythagorean Theorem for use in finding area and volume in two- and three-dimensional figures.

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Scott County Schools | Grade 8 | Mathematics
<table>
<thead>
<tr>
<th>Domain</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geometry</td>
<td>Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.</td>
</tr>
</tbody>
</table>

**Cluster**

Understand and apply the Pythagorean theorem.

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>Recognize when to apply Pythagorean Theorem in a real-world situation.</td>
<td>I can recognize when to apply Pythagorean Theorem in a real-world situation. This means I know when to apply the Pythagorean Theorem to real-world situations.</td>
</tr>
<tr>
<td>R</td>
<td>Determine how to create a right triangle from two points on a coordinate graph.</td>
<td>I can use two coordinates to create a right triangle. This means I can extend legs from two points that meet at a right angle to create a right triangle.</td>
</tr>
<tr>
<td></td>
<td>Construct a right triangle from two points (hypotenuse) on a coordinate graph.</td>
<td>I can construct a right triangle from two points on a coordinate graph. This means I can use two coordinates to create a right triangle.</td>
</tr>
<tr>
<td></td>
<td>Use the Pythagorean Theorem to solve for the distance between the two points.</td>
<td>I can apply the Pythagorean Theorem to find the distance between two points. This means given two points I can use the Pythagorean Theorem to find the distance between the points.</td>
</tr>
</tbody>
</table>
## Standard

Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

### Cluster

Solve real-world and mathematical problems involving volume of cylinders, cones and spheres.

### Domain

Geometry

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<tr>
<td>K</td>
<td>Identify and define vocabulary: cone, cylinder, sphere, radius, diameter, circumference, area, volume, pi, base and height.</td>
<td>I can define key vocabulary: cone, cylinder, sphere, radius, diameter, circumference, area, volume, pi, base and height. This means I can define key vocabulary for area and volume.</td>
</tr>
<tr>
<td></td>
<td>Know formulas for volume of cones, cylinders and spheres.</td>
<td>I can memorize formulas for the volume of cones, cylinders and spheres. This means I can recall the formulas for volume of cones, cylinders and spheres.</td>
</tr>
<tr>
<td>R</td>
<td>Compare the volume of cones, cylinders, and spheres.</td>
<td>I can compare the volume of cones, cylinders and spheres. This means I understand the relationship of the ratios between cone, cylinder and sphere that have the same radius.</td>
</tr>
<tr>
<td></td>
<td>Determine and apply appropriate volume formulas in order to solve mathematical and real-world problems for the given shape.</td>
<td>I can determine and apply the correct volume formula to solve real-world problems for cones, cylinders and spheres. This means given a real-world problem involving cones, cylinders or spheres, I know which formula to use to calculate the volume.</td>
</tr>
<tr>
<td></td>
<td>Given the volume of a cone, cylinder, or sphere, find the radii, height, or approximate for π.</td>
<td>I can find the radii, height or approximate for π given the volume of a cone, cylinder or sphere. This means I can use the inverse operations to solve for height, radius or π.</td>
</tr>
</tbody>
</table>

### Mathematical Practices

- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Use appropriate tools strategically.
- Attend to precision.
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.
### Domain
- **Number System**

### Standard
Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers, show that the decimal expansion repeats eventually and convert a decimal expansion which repeats eventually into a rational number.

### Cluster
Know that there are numbers that are not rational and approximate them by rational number

### Target Type
- K

#### State Target
- Define irrational numbers
- Show that the decimal expansion of rational numbers repeats eventually.
- Convert a decimal expansion which repeats eventually into a rational number.
- Show informally that every number has a decimal expansion.

#### Student Friendly Target
- I can define irrational numbers. This means I know the difference between irrational and rational numbers.
- I can write rational numbers in expanded form. This means I can represent a rational number in it’s expanded form.
- I can convert the decimal expansion of a rational number. This means I can convert a decimal expansion, which repeats eventually into a rational number.
- I can show informally that every number has a decimal expansion. This means I can show informally that every number has a decimal expansion.
### Number System

#### Cluster
Know that there are numbers that are not rational and approximate them by rational number approximations.

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<tr>
<th>Target Type</th>
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<tbody>
<tr>
<td>K</td>
<td>Approximate irrational numbers as rational numbers.</td>
<td>I can use rational numbers to approximate the value of irrational numbers. This means I can use approximations to represent irrational numbers as rational numbers.</td>
</tr>
<tr>
<td>R</td>
<td>Compare the size of irrational numbers using rational approximations.</td>
<td>I can approximate and order irrational numbers using rational number estimates. This means I can use rational number estimates to determine the order of irrational numbers.</td>
</tr>
</tbody>
</table>

#### Standard
Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., \(\pi^2\)). *For example, by truncating the decimal expansion of \(\sqrt{2}\), show that \(\sqrt{2}\) is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.*

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Scott County Schools  
Grade 8  
Mathematics
Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.</td>
<td>I can describe patterns of data using vocabulary such as clustering, outliers, positive, negative, linear or nonlinear. This means I can look at displays of data and describe the pattern.</td>
</tr>
<tr>
<td></td>
<td>Construct scatter plots for bivariate measurement data.</td>
<td>I can construct scatter plots for bivariate measurement data. This means I can create scatter plots for two variable data.</td>
</tr>
<tr>
<td>R</td>
<td>Interpret scatter plots for bivariate (two different variables) measurement data.</td>
<td>I can interpret scatter plots for bivariate measurement data. This means I can interpret scatter plots with two variables.</td>
</tr>
</tbody>
</table>
Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.

State Target
Know straight lines are used to model relationships between two quantitative variables

Student Friendly Target
I can plot straight lines that show the relationship between two variables. This means I can fit the straight line to show the effect one variable has on another.

Informally assess the model fit by judging the closeness of the data points to the line

I can find the center of the data points on a scatter plot and create a line of best fit. This means I can show the best relationship for two variables on a scatter plot with a line of best fit.

Fit a straight line within the plotted data.

I can use a straight edge to draw the line of best fit on a scatter plot. This means I can look at a scatter plot and construct the line of best fit.
### Domain
- **Statistics and Probability**

### Cluster
- Investigate patterns of association in bivariate data.

### Standard
Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. *(For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.)*

### Target Type
- **K** Find the slope and intercept of a linear equation.
- **R** Interpret the meaning of the slope and intercept of a linear equation in terms of the situation. *(For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.)*

### State Target
- Solve problems using the equation of a linear model.

### Student Friendly Target
- I can find the slope and y-intercept given a linear equation. This means I understand how to determine slope and y-intercept given a linear equation.
- I can interpret the meaning of the slope and y-intercept given an applied situation. This means given a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.
- I can use a linear model to solve problems. This means I can apply the linear model to solve varied problems.
Domain: Statistics and Probability
Cluster: Investigate patterns of association in bivariate data.

**Standard**
Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables.

*(For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?)*

<table>
<thead>
<tr>
<th>Target Type</th>
<th>State Target</th>
<th>Student Friendly Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>Recognize patterns shown in comparison of two sets of data.</td>
<td>I can compare two sets of data and determine a pattern. This means I can find or determine a pattern from two sets of data.</td>
</tr>
<tr>
<td></td>
<td>Know how to construct two-way tables.</td>
<td>I can construct a table of values. This means I can create a table of x, y values</td>
</tr>
<tr>
<td>R</td>
<td>Interpret the data in the two-way table to recognize patterns. <em>(For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?)</em></td>
<td>I can determine the pattern in a given table of values. This means I can determine the pattern in a given table of values</td>
</tr>
<tr>
<td></td>
<td>Use relative frequencies of the data to describe relationships (positive, negative, or no correlation)</td>
<td>I can use the slope to describe the correlation, as positive, negative or no correlation. This means I can identify the slope from the set of data.</td>
</tr>
</tbody>
</table>