



OKLAHOMA

Priority Academic Student Skills

Secondary Mathematics

Progression Guide

*Produced Summer 2014 by OKMath Teachers for OKMath Teachers at the
Oklahoma State Department of Education OKMath Summer Convening*





PASS (2009 Revisions) Secondary Math Progression Guide

These progressions are only a suggestion made by fellow OKMath Teachers. Teachers might use them to inform their instruction but should do so critically and with respect to the unique needs of their students. Each grade level or course is organized according to Learning Goals. These goals attempt to address “What mathematics is being learned; Why is it important; How does it related to what has already been learned; and Where are these mathematical ideas going” (NCTM, 2014)? Each Learning Goal is listed with a recommended time frame (except for in Algebra 1 and Algebra 2), the related PASS (2009) objectives, and Student Learning Goals (or “I can” statements).

Special thanks to Jacci Anderson, Robin Coffman, Diana Early, Nicole Faber, Kelly Gilland, Alecia Heiderscheit, Kate Isaac, Karen Kimberling, Rochelle Lively, Julie Owens, Kari Quigley, Rebecca Rubio, Jeanne Smith, Heather Sparks, Gretchen Watson, and all of the other teachers who gave their time to contribute.

Please submit any comments or corrections to: Levi.Patrick@sde.ok.gov

Table of Contents

6th Grade Math Progressions	4
7th Grade Math Progressions	8
8th Grade Math Progressions	12
Algebra 1 Progressions	15
Geometry Progressions	18
Algebra 2 Progressions	23

6TH GRADE MATH PROGRESSIONS



These progressions are structured within 120 teaching days in order to allow for review, assessment, and flexibility for the classroom teacher.

Goal
1

Number Sense: My students will develop an understanding of and fluency with multiplication and division of fractions, decimals, and percents.

Rational Numbers (Fractions, Decimals and Percents)

25 Days

6.2.1	I can convert decimals, fractions and percents using a variety of methods. I can compare decimals, fractions and percents using a variety of methods. I can order decimals, fractions and percents using a variety of methods.
6.2.2a	I can multiply fractions and mixed numbers to solve problems using a variety of methods. I can divide fractions and mixed numbers to solve problems using a variety of methods.
6.2.2b	I can multiply decimals to solve problems using a variety of methods (limit to 1000ths place). I can divide decimals to solve problems using a variety of methods (limit to 1000ths place).
6.2.2c	I can estimate and evaluate problems, both single and multi-step, using whole numbers. I can estimate and evaluate problems, both single and multi-step, using decimals (limit to 1000ths place). I can estimate and evaluate problems, both single and multi-step, using fractions. I can estimate and evaluate problems, both single and multi-step, using percents.

Goal
2

Number Sense: My students will develop a basic understanding of integer operations including exponents and parentheses.

Integers and Exponents

10 Days

6.2.2d	I can use basic operations with integers (positive and negative rational numbers) to solve mathematical and real-world problems (add, subtract, multiply, & divide). I can comprehend that <i>absolute value</i> is a number's distance from 0 on the number line.
6.2.2e	I can build and recognize models of multiples to develop the concept of exponents. I can evaluate and apply exponents to whole numbers up to the 4th power (repeated multiplication). I can use order of operations to simplify numerical expressions (with exponents and parentheses).

Goal
3

Algebraic Reasoning and Patterns: My students will demonstrate the ability to identify and analyze number patterns from a variety of sources and develop algebraic rules using variables to explain the pattern.

Patterns		15 Days
6.1.1	I can explain and extend patterns using tables, graphs, and number properties. I can explain and extend functions using tables, graphs, and number properties.	
6.1.2	I can write algebraic expressions and simple equations that correspond to a given situation, both mathematical and real world. I can interpret and explain pictorial representations of simple linear equations.	
6.1.3	I can use substitution to evaluate and simplify algebraic expressions, where the variable value does not exceed 2-digits (if $x=5$ evaluate $3-5x$).	

Goal
4

Algebraic Reasoning and Patterns: My students will use the order of operations to find the value of an algebraic expression.

Order of Operations		10 Days
6.1.4	I can write and solve one-step equations with one variable (utilizing number sense, properties of operations, and the properties of equality). I can model and translate among algebraic and pictorial representations of one-step linear equations that use positive whole numbers and fractions.	

Goal
5

Geometry and Measurement: My students will be able to identify, describe, and analyze three-dimensional shapes.

Geometry (3-D Shapes)		13 Days
6.3.1	I can classify three-dimensional figures by their visual attributes (pyramids, prisms, cones, spheres, and cylinders). I can compare and contrast basic characteristics of three-dimensional figures (pyramids, prisms, cones, spheres, and cylinders).	
6.3.2	I can compare and contrast congruent and similar figures using visual identification. I can explain the difference between congruence and similarity.	

Goal
6

Geometry and Measurement: My students will be able to identify and apply the characteristics of the four quadrant coordinate plane.

Coordinate Plane

5 Days

6.3.3

I can identify the 4 quadrants of the coordinate plane based on a given point [(4, -3) is located in quadrant II].
I can label the coordinates of a given point on the coordinate plane.
I can plot points on the coordinate plane given the coordinates.

Goal
7

Geometry and Measurement: My students will be able to summarize and apply the concepts of area and circumference of circles using appropriate formulas.

Circles

7 Days

6.4.1

I can explain the concepts of area and circumference of circles in mathematical, geometric, and real-world contexts.
I can apply the formulas used to find the circumference and area of circles in a variety of contexts (using exact terms of pi and limiting radii to whole numbers).

Goal
8

Geometry and Measurement: My students will be able to use both standard and metric units to solve problems.

Measurement

15 Days

6.4.2

I can compute with and express solutions using customary unit conversions to solve problems in mathematical, geometric, and real-world context (linear measures, weight, mass, time, perimeter, area, capacity, and volume).
I can compute with and express solutions using metric conversions to solve problems in mathematical, geometric, and real-world contexts (linear measures, weight, mass, time, perimeter, area, capacity, and volume).

Goal
9

Data Analysis: My students will organize and represent data in appropriate formats and to solve problems using data collected, organized, and represented in a variety of formats.

Interpreting and Representing Data

8 Days

6.5.1

- I can read and interpret data presented in a variety of formats.
- I can solve mathematical and real-world problems based on data presented in a variety of formats.
- I can collect and organize data in appropriate formats.
- I can select appropriate representations of data such as tables and graphs (bar, circle, or line).
- I can analyze how representations of data influence inferences and predictions.

Goal
10

Data Analysis: My students will use simple probability to describe the outcome of different arrangements and combinations of up to five items.

Probability

5 Days

6.5.2

- I can describe the different possible outcomes (probability) of arrangements or combinations of up to 5 different items (use fundamental counting principle).

Goal
11

Data Analysis: My students will be able to produce the mean, median, mode, and range for a set of data and represent it through a variety of visual representations.

Central Tendency and Spread

7 Days

6.5.3

- I can determine mean, median, mode, and range for a set of numerical data of no more than 20 items.
- I can represent central tendency (mean, median, mode, & range) through a variety of visual representations (charts, tables, bar graphs, pictographs, frequency charts, line plots, scatter plots, and stem-and-leaf plot).
- I can compare how representations of data support inferences and predictions.

6th Grade

7th Grade

8th Grade

Algebra 1

Geometry

Algebra 2

7TH GRADE MATH PROGRESSIONS



These progressions are structured within 108 teaching days in order to allow for review, assessment, and flexibility for the classroom teacher.

Goal
1

Number Sense: My students will develop an understanding of and fluency with operations on all rational numbers in real-world and mathematical settings.

Rational Numbers (Fractions, Decimals and Whole Numbers) 10 Days

7.2.1a	I can recognize positive and negative rational numbers. I can compare positive and negative rational numbers. I can order positive and negative rational numbers.
7.2.1b	I can build models of perfect squares and square roots. I can recognize perfect squares and square roots. I can utilize a number line to estimate the value of an imperfect square root.

Order of Operations (Introduced - Used Throughout Year) 3 Days

7.2.2c	I can apply order of operations to simplify numerical expressions including integers and exponents.
--------	---

Goal
2

Number Sense: My students will understand and apply ratios and proportions to solve problems in real-world and mathematical settings.

Ratios and Proportions (Introduced - Used Throughout Year) 15 Days

7.2.1c	I can write a ratio in a variety of ways (part to part; part to whole; a to b; a:b; or a/b). I can prove shapes are similar using ratios and proportions. I can apply a scale factor to enlarge or reduce a model.
7.2.2a	I can solve a proportion using equivalent ratios. I can identify and explain what a unit rate is. I can calculate a unit rate. I can apply the concept of unit rate to solve real-world problems involving unit pricing or constant speed.

Percent (Introduced - Used Throughout Year) 10 Days

7.2.2b	I can represent the percent of a number in more than one way (setting up a proportion, changing the percent to a decimal and multiplying, or using mental math). I can interpret and apply percent in a real-world and mathematical situations.
--------	--

6th Grade

7th Grade

8th Grade

Algebra 1

Geometry

Algebra 2

Goal
3

Algebraic Reasoning: My students will use properties and algebraic reasoning to identify, simplify, and solve linear equations and inequalities.

Two-Step Equations (Writing and Solving)		10 Days
7.1.2	<p>I can write a two-step equation that models a real-world scenario.</p> <p>I can solve a two-step equation in real world and mathematical settings using order of operations and the properties of equality.</p>	
Linear Inequalities		5 Days
7.1.3	<p>I can model a one-step linear inequality.</p> <p>I can write a one-step linear inequality.</p> <p>I can solve a one-step linear inequality.</p> <p>I can graph a one-step linear inequality.</p> <p>I can connect inequalities to real-world situations. (e.g., My budget cannot exceed \$50; $b < \\$50$).</p>	
Functional Relationships (Linear and Nonlinear)		5 Days
7.1.1	<p>I can identify linear and non-linear functional relationships between two variables displayed as tables or graphs.</p> <p>I can describe linear and non-linear functional relationships between two variables displayed as tables or graphs.</p> <p>I can describe linear and non-linear functional relationships between two variables displayed as tables or graphs.</p> <p>I can analyze linear and non-linear functional relationships between two variables displayed as tables or graphs.</p>	

Goal
4

Geometry: My students will apply the properties and relationships of plane geometry in a variety of contexts.

Geometric Classification		12 Days
7.3.1 7.3.3	<p>I can classify triangles according to their sides and angles.</p> <p>I can classify quadrilaterals according to their sides and angles.</p> <p>I can identify geometric figures on the rectangular plane (e.g., rotations, translations, reflections, magnifications).</p> <p>I can construct geometric figures on the rectangular plane (e.g., rotations, translations, reflections, magnifications).</p>	

Angle Relationships

8 Days

7.3.2

I can identify angle relationships formed by parallel lines cut by a transversal (e.g., alternate interior angles, alternate exterior angles, adjacent, and vertical angles).
I can determine the measure of given angles formed by parallel lines cut by a transversal (e.g., given the measure of one angle, find the measure of an adjacent angle).

Goal 5

Measurement: My students will use measurement to solve problems in a variety of contexts.

Areas and Perimeter

10 Days

7.4.1
7.4.3

I can develop a formula for the perimeter of a triangle and quadrilateral.
I can apply the formula for the perimeter of a triangle and quadrilateral to solve problems.
I can develop the formula for the area of a triangle.
I can apply the formula for the area of a triangle.
I can develop the formula for the area of a parallelogram (square, rectangle, parallelogram).
I can apply the formula for the area of a parallelogram.
I can develop the formula for the area of a trapezoid.
I can apply the formula of the area of a trapezoid.
I can find the perimeter of a composite figure.
I can find the area of a composite figure.

Area and Circumference

5 Days

7.4.2

I can apply the formula for the circumference of a circle to solve problems.
I can apply the formula for the area of a circle to solve problems.

Goal 6

Data Analysis: My students will use data analysis, probability, and statistics to interpret data in a variety of contexts.

Data Analysis

5 Days

7.5.1

I can compare displays of data including combinations of diagrams, tables, charts and graphs.
I can translate between displays of data including combinations of diagrams, tables, charts and graphs.
I can interpret different displays of data including combinations of diagrams, tables, charts and graphs.

Probability		6 Days
7.5.2	I can determine the probability of an event involving "or," "and," and "not."	
Central Tendency		4 Days
7.5.3	<p>I can compute the mean for data sets.</p> <p>I can compute the median for data sets.</p> <p>I can determine the mode for data sets.</p> <p>I can compute the range for data sets.</p> <p>I can explain how additional data or outliers affect each of the measures of central tendency.</p>	

8TH GRADE MATH PROGRESSIONS



These progressions are structured within 130 teaching days in order to allow for review, assessment, and flexibility for the classroom teacher.

Goal 1

Number Sense: My students will apply rules of exponents using integer exponents to solve a variety of problems, including scientific notation.

Order of Operations

5 Days

8.2.2c

I can recognize positive and negative rational numbers. I can use the order of operations to simplify numerical expressions that include rational numbers and exponents.

Exponent Rules

10 Days

8.2.2a

I can use rules of exponents to rewrite and simplify multiplication and division problems.

Scientific Notation

5 Days

8.2.1

I can recognize, write, and compare a number in scientific notation.

8.2.2b

I can convert a number into scientific notation and rewrite scientific notation into a standard number.

I can use scientific notation to solve real-world and mathematical problems.

Goal 2

Algebraic Reasoning: My students will develop an understanding of inverse operations and use them to solve multi-step equations, inequalities, and basic formulas.

Multi-Step Equations

10 Days

8.1.1a

I can model, write, and solve multi-step linear equations in real-world and mathematical situations.

Inequalities and Graphing on a Number Line

5 Days

8.1.2

I can write and solve linear inequalities, and model the solution using a number line.

Literal Equations

5 Days

8.1.1d

I can rewrite and solve problems using appropriate formulas.

Goal
3

Algebraic Reasoning: My students will develop the understanding of slope as a rate of change through a variety of methods, including equations, graphing, tables, and interpreting effect of graphs in real-world and mathematical problems.

Linear Equations, Slope-Intercept, Graphing and Tables, and Predicting Changes of Graphs

20 Days

8.1.1b
8.1.1c

I can determine the slope of a line as positive, negative, zero or undefined.
I can find the slope of a line in a graphical model using rise over run.
I can identify the slope and y-intercept in an equation and a graph.
I can predict the effects of a line when the rate of change (slope) and/or y-intercept change in value.
I can graph the equation of a line in slope-intercept form.
I can write an equation in slope-intercept form.

Goal
4

Geometry: My students will develop and apply the Pythagorean Theorem to solve for unknown values and the distance between two points.

Pythagorean Theorem

10 Days

8.3.2

I can identify the hypotenuse and legs of a right triangle.
I can solve for missing side lengths in a right triangle using the Pythagorean Theorem.

Goal
5

Geometry: My students will use key features of solids (nets and orthogonal drawings) to develop and apply formulas of surface area and volume.

Classifying Solids

4-5 Days

8.3.1

I can identify solids from a variety of methods, such as nets, isometric, or orthogonal drawings.

Surface Area and Volume (Substitution Into Formulas)

4-5 Days

8.4.1

I can solve for surface area and volume using the appropriate formulas.

Goal 6 Measurement: My students will decompose composite figures and apply formulas to find the area of the object.

Composite Figures and Cross Sections

5 Days

8.4.3

I can identify basic 2-dimensional figures from a composite figure.
I can find the area of composite figures.

Goal 7 Measurement: My students will use ratio and proportion to solve for unknown values of similar figures.

Ratio and Proportions (Similar Figures)

10 Days

8.4.2

I can set up and solve for missing side lengths of similar geometric shapes using ratios and proportions.

Goal 8 Data Analysis: My students will select, analyze and apply data displays, including tables, frequency charts, line graphs, bar graphs, line plots, pictographs, stem-and-leaf plots, scatter plots, histograms, and circle graphs, to draw conclusions and solve problems.

Data Display

15 Days

8.5.1

I can choose the appropriate format in which to display data.
I can use data displays to draw conclusions and solve problems.

Goal 9 Data Analysis: My students will use and find measures of central tendency to solve a variety of problems.

Central Tendency

10 Days

8.5.3

I can calculate the mean, median, mode, and range of a data set.
I can choose the measure that would be most useful in a real-world situation.

Sample Choices

10 Days

8.5.2*

I can identify how data is gathered (random, limited, or biased) for a sample.
I can generalize information about a sample population to draw conclusions.
I can distinguish between valid and invalid conclusions based on information about how the sample was selected.

ALGEBRA 1 PROGRESSIONS

 The Algebra 1 Progressions are not set as a pacing guide so the top right cell of each table is empty so teachers can add their own length.

Goal 1

Solving Equations and Inequalities: My students will use expressions and equations to model number relationships and solve linear equations and inequalities using their properties.

Linear Equations and Inequalities		
A1.2.2a A1.2.3a	Students will recognize positive and negative rational numbers. I can use the order of operations to simplify numerical expressions that include rational numbers and exponents.	
Absolute Value, Expressions, Literal Equations and Formulas		
A1.1.1 A1.1.2	Students will use expressions and equations to model number relationships.	

Goal 2

Slope: Students will calculate and interpret slope as a rate of change, determine the relationship between coplanar lines using slope, and locate, calculate and interpret the intercepts of a linear equation.

Slope		
A1.1.1d A1.2.1a A1.2.2c	Students will calculate and interpret slope and use slope to differentiate between parallel, perpendicular, or neither. Students will calculate and interpret slope and use slope to differentiate between positive, negative, vertical, or horizontal.	
Linear Equations		
A1.2.2d	Students will calculate and interpret slope and use slope to differentiate between linear and nonlinear data. Students will interpret rate of change (slope) and intercepts within the context of everyday life.	

Goal 3

Function Families: Students will understand the overarching effects of transformations on parent graphs and be able to see and determine characteristics of functions when presented in various representations.

Function Transformations

A1.2.1	Students will recognize the parent graph (linear, inequality, absolute value, exponential, quadratic).
A1.2.2	
A1.2.3	Students will predict the effects of transformations on the parent graph (linear, inequality, absolute value, exponential, quadratic).
A1.2.2b	
A1.2.5	

Function Characteristics

A1.2.1	Students will determine and interpret the independent dependent variable (linear, inequality, absolute value, exponential, quadratic).
A1.2.2	
A1.2.3	Students will determine and interpret domain and range (linear, inequality, absolute value, exponential, quadratic).
A1.2.2b	
A1.2.5	
Students will find (if applicable) and interpret the intercepts (linear, inequality, absolute value, exponential, quadratic).	

Function Representations

A1.2.1	Students will match tables, equations, graphs and/or situations and vice-versa for each function type (linear, inequality, absolute value, exponential, quadratic).
A1.2.2	
A1.2.3	
A1.2.2b	
A1.2.5	

Function Solutions

A1.2.1	Students will graph and find the solutions for linear, inequality, absolute value, and quadratic functions.
A1.2.2	
A1.2.3	
A1.2.2b	
A1.2.5	

Goal 4

Solving Systems and Quadratics: Students will use algebraic structure and properties to manipulate one or multiple equations to solve and analyze characteristics of systems of equations and quadratic equations.

Systems of Equations

A1.2.4	Students will solve systems of linear equations by graphing, substitution, or eliminations.
--------	---

Quadratics	
A1.1.2c A1.2.5b	Students will solve of quadratic equations by graphing, factoring or using the quadratic formula.

Goal 5

Data and Probability: Students will utilize a variety of data and data representations to make sense of the world around them and predict outcomes.

Scatterplots and Line of Best Fit	
A1.3.2	Students will collect data involving two variables and display on a scatter plot; interpret results using a linear model/equation and identify whether the model/equation is a line of best-fit for the data.
Data Representations	
A1.3.1a	Students will translate from one representation of data to another and understand that the data can be represented using a variety of tables, graphs, or symbols and that different modes of representation often convey different messages.
Predictions	
A1.3.1b	Students will make valid inferences, predictions, and/or arguments based on data from graphs, tables, and charts.
Probability and Measures of Central Tendency	
A1.3.1c	Students will solve two-step and three-step problems using concepts such as probability and measures of central tendency.

GEOMETRY PROGRESSIONS



These progressions are structured within 128 teaching days in order to allow for review, assessment, and flexibility for the classroom teacher.

6th Grade

Language of Geometry, Coordinate Geometry, and Properties of 2-Dimensional Figures:

Goal 1

My students will understand the different parts of a line or plane. Students will investigate angles and set up equations to solve for unknown values.

7th Grade

Students will be introduced to **distance, midpoint, and slope formulas**, as these will be needed throughout the year.

Students will be introduced to **transformations (reflection, rotation, and translation)**, as these will be needed throughout the year.

8th Grade

14 Days

Geometry Terms, Line and Angle Relationships

G.2.2c

Students will name lines, rays, segments, angles and planes.
 Students will identify points that are coplanar or collinear.
 Students will use the relationships between angle addition and segment addition to solve for unknown values.
 Students will use the relationships between complementary, supplementary, and vertical to determine unknown values and determine angle measures.

Algebra 1

Goal 2

Logical Reasoning: Students will write conditional statements and use deductive and inductive reasoning skills to determine the truth value of each.

Geometry

10 Days

Conditional Statements

G.1.2

Students will write converse, inverse, and contra-positive statements without help or notes.
 Students will identify the hypothesis and conclusion in each statement.

Algebra 2

Inductive and Inductive Reasoning

G.1.1

Students will determine the truth value of each statement using deductive and inductive reasoning.
 Students will provide a counterexample if statement is false.
 Students will create a logical chain of events.

Goal
3

Polygons: Students will classify polygons according to their properties and use the interior and exterior angle sum theorems.

12 Days

Polygons - Identification and Description

G.2.3a Students will identify and describe polygons as convex, concave, or regular.

Polygons - Interior and Exterior Angle Sums

G.2.3b Students will calculate the measure of interior/exterior angles in polygons using the appropriate formulas.
Students will solve for the measure of unknown values of interior angles of triangles.
Students will solve for interior angles of triangles based on their properties of isosceles, scalene, or equilateral.

Goal
4

Angle Relationships: Students will use angle relationships formed by parallel lines cut by a transversal to solve for unknown values and verify lines are parallel based on those relationships.

12 Days

Parallel Lines and Transversals

G.2.2a Students will use corresponding angles, alternate interior angles, alternate exterior
G.2.2b angles, and same-side interior angles to solve for unknown values.
G.2.2c Students will verify lines are parallel using the relationships between the angles.

Goal
5

Quadrilaterals: Students will apply properties of quadrilaterals to solve problems.

9 Days

Properties of Quadrilaterals

G.2.3c Students will classify quadrilaterals by their properties (sides, angles, and diagonals).
Students will apply properties of special quadrilaterals to solve for unknown values.

Goal
6

Congruence: Students will verify the relationships of congruent triangles using appropriate theorems and proofs.

16 Days

Congruent Triangles

G.2.5a	Students will determine and prove two triangles are congruent based on their corresponding, congruent parts using SSS, SAS, ASA, AAS, and HL .
G.2.5b	Students will use congruent triangles and corresponding parts to solve for unknown values.

Goal
7

Similarity and Triangle Relationships: Students will verify the relationships of similar triangles and use them to determine unknown values.

10 Days

Similarity

G.2.4a	Students will identify and apply the appropriate theorems and postulates of similar triangles by AA, SAS, and SSS.
G.2.4b	Students will use similarity ratios to solve for missing side lengths. Students will use similar triangles to identify congruent angles.

Goal
8

Triangles and Trig Ratios: Students will use the Pythagorean Theorem and its converse to solve for missing side lengths and determine if triangles are acute, right, or obtuse.

14 Days

Pythagorean Theorem

G.3.1	Students will solve for unknown side lengths of triangles, rectangles, and squares by applying the Pythagorean Theorem. Students will apply the converse of the Pythagorean Theorem to verify triangles are acute, right, or obtuse.
-------	---

Special Right Triangles

G.3.2 Students will solve for unknown side lengths of squares or equilateral triangles using the rules for Special Right Triangles

Trig Ratios

G.3.3 Students will find the sine, cosine, and tangent of acute angles.
Students will use trig ratios to solve real-life problems.

Goal
9

2-Dimensional Figures: Students will use perimeter, circumference, and area formulas to solve for unknown values.

9 Days

Similarity

G.2.3d Students will solve for unknown side lengths of triangles, rectangles, parallelograms, polygons, and trapezoids by applying the area formulas for the polygon.
Students will solve for unknown diameter or radius length by applying the formulas of area and circumference of circles.
Students will solve and compare circumference and area of circles as approximate values and in terms of π .
Students will solve for the area of the shaded region that involves two different shapes, such as a circle inside a square.

Goal
10

3-Dimensional Figures: Students will identify and describe polyhedra.

9 Days

Polyhedra

G.4.1a Students will identify and describe various polyhedrons.

G.4.1b Students will apply formulas to determine lateral area, surface area, and volume of 3-dimensional objects.
Students will correctly identify the appropriate unit of measure of each object.

Models of 3-Dimensional Objects

G.4.3	Students will create a model of a 3-dimensional object from a net, blueprint, or perspective drawing.
-------	---

Similarity of 3-Dimensional Objects

G.4.2	Students will use ratios to solve for unknown values of perimeter, area and volume of various objects.
-------	--

Goal 11

Angle Relationships in Circles: Students will utilize measurements and relationships of angles and arcs within circles to solve for unknown measures.

7 Days

Circles

G.2.6a	Students will use angle and arc measures to solve for unknown values.
--------	---

G.2.6b	Students will find angle measures and segment lengths using the relationships of radii, chords, secants, and tangents of a circle.
--------	--

Goal 12

Coordinate Geometry: Students will analyze geometric properties and transformations on the coordinate plane using the distance formula.

5 Days

Distance, Midpoint, and Slope (typically introduced throughout year)

G.5.1	Students will determine if lines are parallel, perpendicular, or neither using slope formula. Students will find the midpoint of a line using the midpoint formula. Students will use the slope formula to determine if lines are parallel, perpendicular, or neither. Students will use the distance formula to determine the length of a line segment.
-------	---

Transformations

G.5.2a	Students will determine the appropriate polygon from a given set of points based on its properties.
--------	---

G.5.2b	Students will use reflection, rotation, and translation on various geometric figures to solve problems on a coordinate plane.
--------	---

ALGEBRA 2 PROGRESSIONS

 The Algebra 2 Progressions are not set as a pacing guide so the top right cell of each table is empty so teachers can add their own length.

Goal 1 **Function Families:** My students will graph functions and identify properties of the parent graphs.

Parent Functions	
A2.2.1.a A2.2.3.b A2.2.5.a A2.2.6.b A2.2.7.b A2.2.7.c A2.3.3	Students will graph linear, arithmetic sequence (optional), absolute value, quadratic, polynomial, rational, radical, exponential, and logarithmic equations. Students will identify properties of the parent graph (graph, domain, range, table, intercepts, maximum, minimum, asymptote, end behavior).
Function Representation	
A2.2.1.d	Students will use algebraic, interval, and set notations, to specify the domain and range of functions of various types.

Goal 2 **Transformations:** My students will predict effects of transformations of parent graphs and write equations of transformed graphs.

Function Transformation	
A2.2.1.a A2.2.3.b A2.2.5.a A2.2.6.b A2.2.6.c A2.2.7.b A2.2.7.c A2.3.1.a	Students will predict the effects of transformations on the parent graphs of linear, absolute value, quadratics, polynomials, rational, radical, exponential, and logarithmic equations.
Function Representation	
A2.2.1.d	Students will use algebraic, interval, and set notations, to specify the domain and range of linear, absolute value, quadratic, polynomial, rational, radical, exponential, and logarithmic functions.

Function Modeling

A2.2.3.c	Students will model a situation that can be described by a linear, absolute value, quadratics, polynomials, rational, radical, exponential, and logarithmic function and use the model to answer questions about the situation.
A2.2.5.c	
A2.2.6.d	
A2.2.7.d	
A2.3.1.b	

Goal
3

Solving: My students will solve equations and inequalities using various methods.

Function Solving

A2.1.1.a	Student will solve equations algebraically, graphically, factoring, completing the square, quadratic formula, synthetic division, with substitution, elimination, matrices, graphing calculators, and by applying properties of exponential and logarithmic functions.
A2.1.1.b	
A2.1.2.a	Students will add, subtract, multiply, divide, and simplify rational expressions, including complex fractions, involving complex numbers, using function notation.
A2.1.2.b	
A2.1.3.b	Students will combine functions by composition.
A2.2.1.b	
A2.2.1.c	Students will find and graph the inverse of a function.
A2.2.1.e	
A2.2.2.b	Students will convert expressions from radical notations to rational exponents and vice versa.
A2.2.3.a	
A2.2.5.b	Students will divide polynomial expressions by lower degree polynomials.
A2.2.6.a	
A2.2.7.a	

Goal
4

Conics: My students will identify, graph, and write the equations of the conic sections.

Conic Sections

A2.2.4	Students will identify, graph, and write the equations of the conic sections (circle, ellipse, parabola, and hyperbola).
--------	--

Goal
5

Statistics and Probability: Students will utilize a variety of data and data representations to make sense of the world around them and predict outcomes.

Statistical Methods for Analyzing Data	
A2.3.2	Students will analyze and synthesize data from a sample using appropriate measures of central tendency and variability. Students will use a bell-shaped curve to solve problems. Identify how given outliers affect representations of data.
Scatterplots and Line of Best Fit	
A2.3.2	Students will collect data involving two variables and display on a scatter plot; interpret results using a linear model/equation and identify whether the model/equation is a line of best-fit for the data.
Data Representations	
A2.3.1a	Students will translate from one representation of data to another and understand that the data can be represented using a variety of tables, graphs, or symbols and that different modes of representation often convey different messages.
Predictions	
A2.3.1b	Students will make valid inferences, predictions, and/or arguments based on data from graphs, tables, and charts.
Probability and Measures of Central Tendency	
A2.3.1c	Students will solve two-step and three-step problems using concepts such as probability and measures of central tendency.

6th Grade

7th Grade

8th Grade

Algebra 1

Geometry

Algebra 2