For PARENTS: Welcome to Supercharged Math!

This packet is designed to help you get started with your math curriculum with us. Please be sure to watch the videos on the **START HERE** page of the website in addition to reviewing the information in this packet.

The math program is divided into two different levels, Grades 4-6th and Grades 7-8th as follows:

Grades 4-6th:

- Fractions & Standard (4-5th Grade)
- Decimals & Metric (4-5th Grade)
- Percent & Finances (6th Grade)
- Geometry (4-5th Grade)
- Pre-Algebra (5-6th Grade)

Grades 7-8th:

- Pre-Algebra (7th Grade)
- Algebra 1 (7th Grade)
- Geometry (8th Grade)
- Probability (7-8th Grade)
- Statistics (7-8th Grade)

Students work through the math program either synchronously (following the live class schedule) or asynchronously (working at their own pace, on their own schedule). The Study Hall is open to all students to ask any questions from any part of the math program at any time, which supports both approaches.

After attending a math lesson with a teacher (live or recorded), students work through the assigned workbook. If your student gets stuck, there are instructional step-by-step videos and also an answer key to help them through the workbooks.

Not sure where to start? We have a quick math assessment you can use to get a rough idea where to being the program. There are also review tests in the back of every workbook to help place your student in the right math area.

In addition to the workbook, each math session includes a set of assignments corresponding to the math skills covered in the lesson. You'll find lots of fun activities, games, challenges, puzzles, and projects for your student to enjoy learning from. Students complete as many as are appropriate for their level.

You will also find word problems and real-world applications in every session so our students will really understand why we're learning a concept and how it gets used by real people.

Math Concepts Recommended for Fourth and Fifth Grade:

Unit 1: Fractions Expect to spend 1 – 6 weeks per session for Fractions (on the shorter side if it's review, and longer if concepts are new to your student.)

Please make sure that your student can do all four operations (addition, subtraction, multiplication, division) with whole numbers *before* starting this unit as well as having full use of the multiplication table at their fingertips.

Students that complete Unit 1: Fractions will have the following concepts handled:

>**Fractions Session #1: *Introduction to Fractions*** Introducing fractions, building fractions to represent real-world problems, measuring in Standard System, scaling photographs to get life-size measurements.

>**Fractions Session #2: *Multiplying and Scaling Fractions*** Multiplying fractions, reducing and expanding fractions by multiplying and dividing, measuring in Standard System, looking at data for patterns using fractions.

>**Fractions Session #3: *Multiplying and Dividing Fractions*** Greatest common factors to scale fractions; multiplying and dividing fractions; using fractions to solve word problems.

>**Fractions Session #4: *Adding and Subtracting Fractions with the Same Denominator*** Basic operations of fractions including adding and subtracting fractions with common denominators; multiplying and dividing fractions of different denominators; time measurement (both elapsed time and time zone calculations); word problems with fractions.

>**Fractions Session #5: *Adding and Subtracting Fractions with Different Denominators*** Adding and subtracting fractions with different denominators; scaling fractions to be equivalent to each other by using multiplication and division; least common denominators; ratios and proportions using real world problems (like gear ratios).

>**Fractions Session #6: *Mixed Numbers and Improper Fractions I*** Building and converting mixed numbers and improper fractions, adding and subtracting mix numbers with different denominators; scaling fractions to be equivalent to each other by using multiplication and division; ratios and proportions using real world problems.

>**Fractions Session #7: *Mixed Numbers and Improper Fractions II, Ratios*** All basic operations with fractions and mixed numbers with different denominators; scaling fractions to be equivalent to each other; finding least common denominators; and using math as a tool to solve real-world science and engineering problems.

Students are now ready for Unit 2: Decimals.

Unit 2: Decimals Expect to spend 1 – 6 weeks per session for Decimals (on the shorter side if it's review, and longer if concepts are new to your student.)

Please make sure that your student can do all four operations (addition, subtraction, multiplication, division) with fractions *before* starting this unit.

Students that complete Unit 2: Decimals will have the following concepts handled:

>**Decimals Session #1:** *Introduction to Place Value* Introducing decimals, building decimals to represent real-world problems, measuring in Metric System, place value for ones, tens, and hundreds.

>**Decimals Session #2:** *Converting Decimals and Fractions* Expanded notion to the hundredths and thousandths, writing decimals as equivalent fractions, and measuring in the Metric System, making decisions based on data and identifying patterns using decimals.

>**Decimals Session #3:** *Adding and Subtracting Decimals* Using zero as a placeholder, adding and subtracting decimals, rounding decimals to tenths and hundredths, introducing multiplying decimal numbers, tallying money totals and counting back change, converting time to decimal notation, estimating speeds and scales from photograph information, and continuing to work with decimals in our word problems.

>**Decimals Session #4:** *Multiplying Decimals* Decimal multiplication, dividing a decimal by a whole number, using zero as a placeholder, different ways to express remainders, how to handle remainders as decimal fractions, and rewriting decimal problems so they are fun and easy to do.

>**Decimals Session #5:** *Dividing Decimals I* Multiplying decimals, dividing by decimal numbers, powers of ten, word problems, significant figures (sig figs) and making sure students really understand all four operations: addition, subtraction, multiplication and division of decimals, and different types of parentheses like brackets and braces.

>**Decimals Session #6:** *Dividing Decimals II* Number patterns, decimal division (dividing decimal numbers by both whole numbers and decimal numbers), word problems, all four operations (adding, subtracting, multiplying and dividing) decimals with practical applications including accounting, rounding, unit pricing, estimating, graphing and averaging.

>**Decimals Session #7:** *Four Operations* All basic operations with decimals and fraction equivalents, accounting skills, estimating, rounding, fraction-decimal equivalents, rational numbers, prime numbers, and using math as a tool to solve real-world science and engineering problems.

Students are now ready for Geometry Fundamentals Mini-Math course for Grades 4-6th.

Mini Math Course: Geometry for Grades 4-6th Expect to spend 1 – 3 weeks per session for this Geometry Fundamentals course (on the shorter side if it's review, and longer if concepts are new to your student.)

Please make sure that your student can do all four operations (addition, subtraction, multiplication, division) with both fractions and decimals *before* starting this unit.

Students that complete Geometry for Grades 4-6th will have the following concepts handled:

> **Session #1:** *Geometry Basics* Exploring the point, line, line segments, rays; angles (acute, right, obtuse); perpendicular and parallel lines; identifying 2D figures; types of triangles; lines of symmetry.

> **Session #2:** *Rectangles, Parallelograms, Triangles and Trapezoids* Learning to draw quadrilateral shapes, polygons and triangles; modeling and calculating areas; word problems.

> **Session #3:** *Composite Shapes* Decomposing shapes into known figures for calculations; area calculations for quadrilaterals; real-world applications and word problems.

> **Session #4:** *Circles* Circumference of a circle; area of a circle; radius and diameter; composite figures involving circular shapes both positive and negative; properties of pi.

> **Session #5:** *3D Figures, Surface Area and Nets* Represent three dimensional figures using nets made from rectangles and triangles; use nets to find surface area for 3D figures; word problems; engineering and real-world applications.

> **Session #6:** *Volume* Calculations based on packing unit cubes; unit conversion within metric and standard as well as between; points on the coordinate plane; calculating volume for rectangular prisms, triangular prisms, rectangular pyramids, triangular pyramids; figuring volume from rational lengths; and re relate volume to operations of multiplication and addition to solve real world problems involving volume.

Students are now ready for Unit 3: Percent (if not yet completed) OR the Mini-Math course in Pre-Algebra for 6th Grade.

Math Concepts Recommended for Fifth and Sixth Grade:

Unit 3: Percent Expect to spend 1 – 6 weeks per session for Percent (on the shorter side if it's review, and longer if concepts are new to your student.)

Please make sure that your student can do all four operations (addition, subtraction, multiplication, division) with both fractions *and* decimals before starting this unit.

Students that complete Unit 3: Percent will have the following concepts handled:

Percent Session #1: *Introduction to Percent and Personal Finances* Writing numbers as percentages, fractions, and decimals; using words to represent percentages; common fractions as percentages. Personal Finances: accounting basics, bookkeeping and ledgers, expense tracking, budgeting, bucketing and money allocation, and money flow fundamentals.

Percent Session #2: *Percent Proportion and Personal Finances II* Converting decimals to percent, fractions to percent, percent to both a fraction and decimal; ratios, unit rate, and percent proportions; modeling; word problems; making financial decisions based on personal finance analysis and future projections; learning how to pick career options based on preferences like lifestyle and income levels.

Percent Session #3: *Multi-step Percent Calculations and Personal Finances III* Converting fraction and decimal numbers to percent, multi-step percent and ratio calculations; unit pricing and ratio comparisons; calculating and comparing discount and sale prices; determining totals using discount coupons, sales tax, gratuity, and tip calculations.

Percent Session #4: *Percent Change and Business Math I* Percent change; absolute value; rational numbers; percent increase and decrease; converting between numbers expressed as decimals, fraction and percent; ratio comparisons; proportionality computations; taking data during science experiments; accounting basics and financial forecasting.

Percent Session #5: *Percent Error and Business Math II* Percent error; rational numbers; percent increase and decrease; converting between numbers expressed as decimals, fraction and percent; ratio comparisons; proportionality computations; taking data during science experiments; accounting basics and setting up and growing a small business from scratch.

Percent Session #6: *Simple and Compound Interest, Business Math III* Using proportional relations to solve multi-step ratio and percent problems involving simple and compound interest; order of operations; handling exponents; converting between numbers expressed as decimals, fraction and percent; ratio comparisons; accounting basics and making financial decisions based on mathematical analysis for a small business.

Percent Session #7: *Unit Review* Use proportional relationships to solve multistep ratio and percent problems; simple and compound interest; tax, tip, markups discounts, and commissions; percent change; percent error; all four operations (addition, subtraction, multiplication, division) on rational numbers expressed as fractions, decimals, and percent; order of operations.

Students are now ready for Mini-Math course in pre-Algebra (slower approach)
OR Unit 4: Algebra 1 (which includes pre-algebra but at a slightly faster pace).

[Mini Math Course: Pre-Algebra for 6th Grade](#) Expect to spend 1 – 3 weeks per session for this Pre-Algebra course (on the shorter side if it's review, and longer if concepts are new to your student.)

Please make sure that your student is very comfortable with performing all four operations (addition, subtraction, multiplication and division) for fractions and decimals, and also be fluent in handling ratios, proportion, and percent in order to be ready for pre-algebra.

Students that complete this pre-Algebra math course will have the following concepts handled:

>**Session #1:** *Pre-Algebra: Operations on Integers I* Multiplication table; factorization; prime numbers, types of numbers; using integers with real world situations; adding integers on a number numbers and with rules; identity property of addition; commutative property of addition; associative property of addition; adding integers using the zero principle; principles and properties of addition; word problems; subtracting integers; word problems and applications.

>**Session #2:** *Pre-Algebra: Operations on Integers II* Multiplying integers both positive and negative; commutative property of multiplication; associate property of multiplication; identity property of multiplication; zero principle of multiplication; multiplicative property of -1; order of operations; distributive property; dividing integers; word problems and applications.

>**Session #3:** *Pre-Algebra: Variables, Terms and Expressions I* Algebraic expressions; table of values; exponents; equivalent expressions; multiplying terms; simplifying expressions; using a calculator for exponents; finding areas of rectangles and squares; word problems and applications.

>*Session #4: Variables, Terms and Expressions II* Combining like and unlike variables; finding perimeter; order of operations; distributive property; evaluating expressions; preparing to solve real equations; word problems and applications.

>*Session #5: Graphing Ordered Pairs* Cartesian coordinate system; graphing points on the coordinate plane; quadrants; applications such as geography.

>*Session #6: Review* Types of numbers; operations with integers (positive & negative); order of operations; algebraic properties including identity, zero, associate commutative, & distributive; factoring & prime factorization; translating phrases into algebraic expressions; inequalities; handling exponents; combining like terms; number line graphs; absolute value; practical applications using engineering and physics topics.

Students are now ready for Unit 3: Percent (if not yet completed) OR Algebra 1.
NOTE: Students MUST complete Unit 3: Percent *before* moving to Algebra 1 – no exceptions.

Math Concepts Recommended for Seventh and Eighth Grade:

Unit 4: Algebra 1 Expect to spend 2 – 6 weeks per session for Algebra (on the shorter side if it's review, and longer if concepts are new to your student.) This is a full Algebra 1 course, with the first session covering pre-Algebra concepts. This course is designed to cover an entire year (35 weeks of instruction).

Please make sure that your student is very comfortable with performing all four operations (addition, subtraction, multiplication and division) for fractions and decimals, and also be fluent in handling ratios, proportion, and percent in order to be ready for algebra. Our first session is a pre-algebra course, so all students can start out with the basic fundamentals.

Students that complete Unit 4: Algebra 1 will have the following concepts handled:

Session #1: *Pre-Algebra: Operations on Integers and Variables, Terms and Expressions* Types of numbers; operations with integers (positive & negative); order of operations; algebraic properties including identity, zero, associate commutative, & distributive; factoring & prime factorization; translating phrases into algebraic expressions; inequalities; handling exponents; combining like terms; number line graphs; absolute value; practical applications of algebra using physics topics such as orbital mechanics and Kepler's Laws of Planetary Motion.

Session #2: *Equations* Order of operations; solving one and two step equations, algebraic properties including identity, zero, associate commutative, & distributive; translating phrases into algebraic expressions; handling exponents; combining like terms; practical applications of algebra using physics topics such as orbital mechanics and universal gravitation concepts.

Session #3: *Rational Numbers and Inequalities* Simplify algebraic expressions and equations; represent math relationships using algebra; evaluate variable expressions and functions; absolute value in expressions and equations; number line representations and modeling; interpret and solve linear equations and inequalities.

Session #4: *Graphing* Solve systems of linear equations using graphing, elimination and substitution methods; simplify algebraic expressions and equations; represent math relationships using algebra; graph linear functions; model and describe slope as a rate of change; identify the slope from a graph, table or equation; evaluate variable expressions and functions; scatter plots for bivariate data.

Session #5: *Systems of Linear Equations* Solve systems of linear equations using graphing, elimination and substitution methods; simplify algebraic expressions and equations; represent math relationships using algebra; graph linear functions; model and describe slope as a rate of change; identify the slope from a graph, table or equation; evaluate variable expressions and functions.

Session #6: *Polynomials, Factoring and Exponents* Solve non-linear equations using factoring, greatest common factors, differences in squares and cubes, sum of cubes, completing the square, trinomial solving techniques, four terms, mixed factoring, and third degree polynomial techniques. Students will continue to practice word problems, simplifying algebraic expressions and equations; representing math relationships using graphs and functions; and evaluating variable expressions and functions.

Session #7: *Quadratic Formula and Equation, Rational and Radical Expressions* Handling variables, terms, expressions; linear and non-linear equations and expressions as they appear in word problems; factoring and related methods of solving polynomials and systems of linear equations; simplifying algebraic expressions and equations; representing math relationships using graphs and functions; and evaluating variable expressions and functions.

Students are now ready for Unit 5: Geometry OR the Mini-Math Course in Probability.

Math Concepts Recommended for Seventh and Eighth Grade:

Unit 5: Geometry Expect to spend 2 – 6 weeks per session for Geometry (on the shorter side if it's review, and longer if concepts are new to your student.) This is a full middle-school level geometry course. Expect the course to take a minimum of 5 months up to one full academic year.

Please make sure that your student has completed a full Algebra 1 course before starting this Geometry course. This Geometry course is algebra-based, and students will be solving linear equations, graphing functions, using exponents, rational numbers, and more.

Students are expected to bring to each class these math tools: protractor, compass, calculator (with the ability to do inverse, exponents, square roots and trig functions – we recommend the TI-30Xa), ruler (with increments in both centimeters and inches), pencil, eraser, and math notebook or paper.

In addition to the regular content, each session also includes a full hands-on Math Lab Challenge Project that students are expected to complete. Students will require materials in order to do their lab projects (refer to Unit 5 for full shopping list) so please be prepared before starting this course.

Students that complete Unit 5: Geometry will have the following concepts handled:

> **Session #1:** *Shapes and Constructions I* Geometry fundamental concepts (point, line, plane, intersections, parallel, perpendicular, angle, colinear, congruence); constructions (triangles, circles, arcs, hexagons, bisectors, copying angles); transformations (dilation, translation, rotation, reflection); types of triangles; multiplying segments; word problems; technical drawing techniques; solving problems through modeling and geometric constructions.

> **Session #2:** *Shapes and Constructions II, Angles* Geometry fundamentals, constructing shapes and figures using a straight edge and ruler; angle relationships; complementary, supplementary, vertical and adjacent angles, writing and solving linear equations; using a protractor to measure angles; bisecting lines and angles; constructing perpendiculars; properties and working with circles; constructing squares, rectangles, and parallelograms; relationships with alternating interior angles.

> **Session #3:** *Triangles* Geometry fundamental concepts constructions (triangles, bisectors, angles); types of triangles; angle relationships; types of angles; applying triangle knowledge to real world problems; write and solve linear equations; angle relationships within a triangle; triangle inequality theorem; relating angles and sides of triangles; solving problems through modeling and geometric constructions.

> **Session #4:** *Circles* Calculate area and circumference of a circle and use them to solve word problems; understand the relationship between the circumference and area of a circle; metric and standard measurement systems**.**

> **Session #5:** *Plane Geometry I - Rectangles, Parallelograms, Triangles, Trapezoids, and Composite Figures* Calculate perimeter and area of different types of triangles, trapezoids, squares, rectangles, parallelograms and quadrilaterals; composing and decomposing shapes into other shapes; creating solving real-world problems with composite figures.

Session #6: *Plane Geometry II - Similarity* Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale; calculate perimeter and area for geometric shapes and composite figures in real world applications; use models and formulas to connect perimeter, circumference and area; determine critical attributes of similarity; solve problems involving similar shapes and scale drawings.

Session #7: *Surface Area* Calculating the total and lateral surface area of solid shapes such as pyramids, prisms, cones, cylinders, cubes, spheres and composite figures; solve real-world problems involving surface area calculations; plane sections; engineering and physics applications.

Session #8: *Volume* Solve real-world problems involving volume of prisms, pyramids, cones, cylinders, spheres and cubes; compute length, area and volume from given data; word problems; engineering and physics applications.

Sessions #9 - 10: Trigonometry of Right Triangles Constraints of triangles; parallel lines cut by transversals; types of angles including complementary, supplementary, adjacent, vertical, alternating interior and exterior, and criteria for similar triangles; compute length and areas from scale drawings; reproduce a scaled drawing of different scales; construction of triangles from three measures (angles or sides); unique, more than one or no triangle considerations; Pythagorean Theorem and converse; trigonometric functions (sin, cos, tan) to define triangles and solve for unknown sides and angles; engineering and physics applications.

**Special considerations if you're thinking about using Unit 5: Geometry for Ninth Grade Math, here are some considerations. Ninth grade math can cover several topics, however usually in ninth grade either algebra or geometry is covered at the school's discretion, as there is no standard of what math subject is to be taught in the ninth grade.

Geometry concepts for ninth grade students focus on plane geometry (2D) and 3D solid objects like prisms, pyramids, spheres, cylinders, cones, and so forth. Students will explore the relationships of shapes to solve geometric problems using concepts like similarity and congruence. Moving objects (called translations) is also covered, such as reflections, rotations, displacement, dilations and symmetry. Students also learn how to use basic geometry tools like the protractor and compass, creating drawings from models, graphing functions to make shapes and simulating the real world on paper to solve design issues and challenges.

While we do cover a lot of these concepts in our eighth-grade geometry course, there are a few that we do not include such as proofs, tessellations and geometric probability. Our course was not intended for high school, so if you use it for ninth grade, you'll need to supplement for the topics we do not cover. Part of the high school experience are things we just can't do in an online course, like teamwork, personal responsibility and relationship-interaction with peers and adults, leadership, cooperation, healthy competition and more.

Students are now ready for the Mini-Math Course in Probability.

Mini Math Course: Probability Expect to spend 1 – 3 weeks per session for this Probability course (on the shorter side if it's review, and longer if concepts are new to your student.)

Please make sure that your student has completed a full Algebra 1 course before starting this course. This course is algebra-based, and students will be solving linear equations, graphing functions, using exponents, rational numbers, and more.

Students that complete this course in Probability will have the following concepts handled:

> **Session #1:** ***Simple Probability and the Complement; Sample Space*** Probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring; approximate the probability of a chance event by collecting data and observing its relative frequency and predict the approximate relative frequency given the probability; find probabilities of compound events using organized lists, tables, tree diagrams, and simulation; probability of compound events represent sample spaces for compound events using organized lists, tables and tree diagrams; identify the outcomes in the sample space which compose the event; word problems and real-world applications.

> **Session #2:** ***Experimental and Theoretical Probability, Simulations and Predictions*** Develop a probability model and use it to find probabilities of events; compare probabilities from a model to observed frequencies; explain possible sources of observed discrepancies; design and use a simulation to generate frequencies for compound events; word problems and real-world applications.

> **Session #3:** ***Dependent and Independent Probability Events*** Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events; develop a probability model by observing frequencies in data generated from a chance process; word problems and real-world applications.

> **Session #4:** ***Review*** Students will practice skill-based problems, real-world application questions, and error analysis to support higher level thinking skills; represent sample spaces and determine probabilities for simple & compound events; solve problems involving qualitative and quantitative data; select and use simulations and make predictions for simple & compound events.

Students are now ready for the Mini-Math Course in Statistics.

Mini Math Course: Statistics Expect to spend 1 – 3 weeks per session for this Statistics course (on the shorter side if it's review, and longer if concepts are new to your student.)

Please make sure that your student has completed *both* a full Algebra 1 course *and* the Probability course before starting. This course is algebra-based, and students will be solving linear equations, graphing functions, using exponents, rational numbers, probability concepts and more.

Students that complete this course in Statistics will have the following concepts handled:
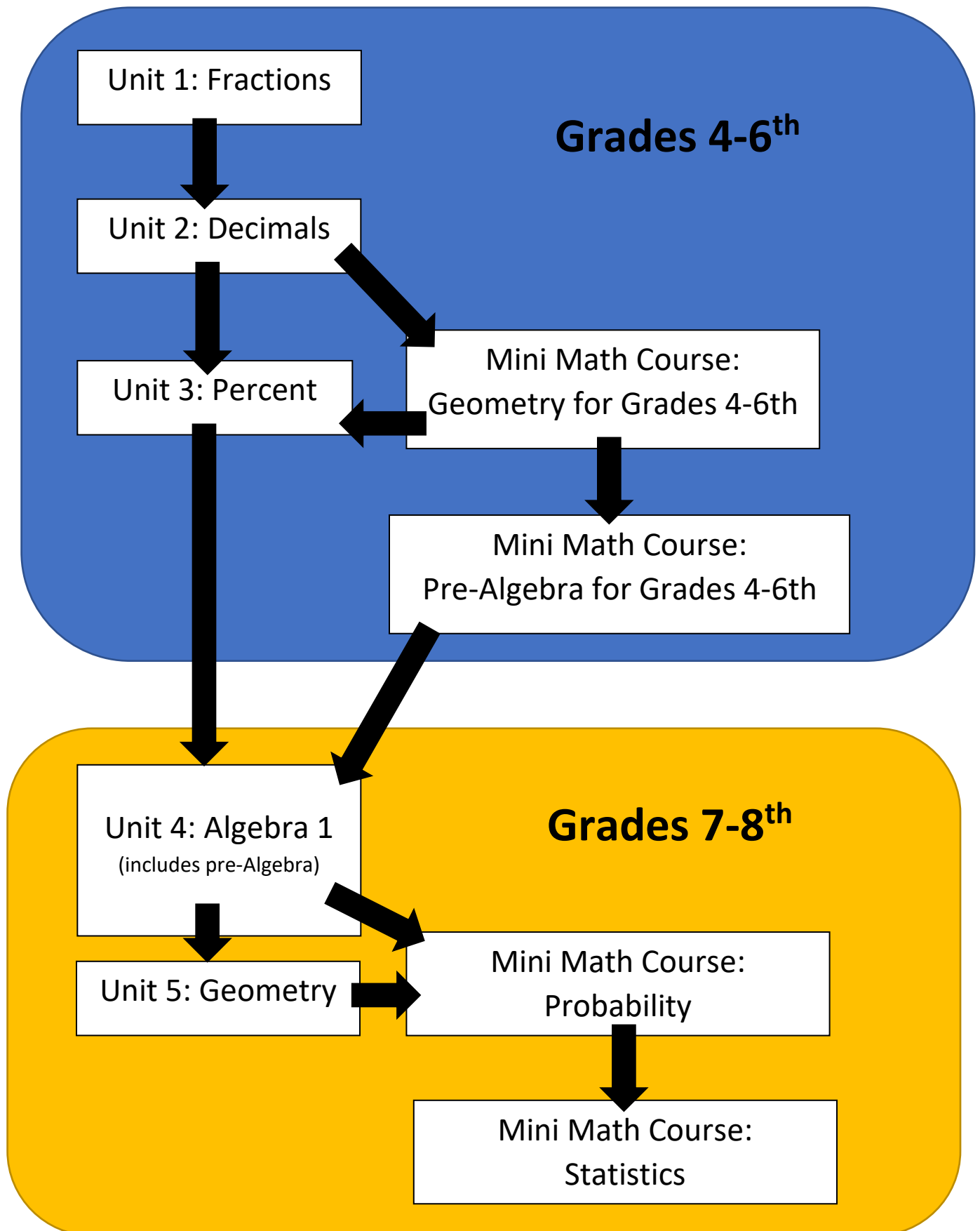
> **Session #1: *Mean and Median, Measures of Center*** Measure of center for a numerical data set as it summarizes all of its values with a single number; measure of variation and how it describes its values vary that vary with a single number; describe measures of center, spread, and shape of a set of data; population and samples; population inferences; comparing two populations based on random samples and use data to make inferences.

> **Session #2: *Range, IQR and MAD, Measures of Variability*** Exploring how a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape; population inferences; comparing two populations based on random samples and use data to make inferences.

> **Session #3: *Dot Plots and Histograms*** Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers; display numerical data in plots on a number line, including dot plots and histograms; compare the shapes, centers and spreads of dot plots; real-world applications and word problems.

> **Session #4: *Box Plots and Statistics Applications*** Display numerical data in a box plot; compare the shapes, centers and spreads of dot plot; two-way frequency data tables; center and shape of data; spread of data; scatter plots; real-world applications and word problems.

Students have completed all of our math courses. CONGRADULATIONS and Great job!

Grades 4-6ᵗʰ

Unit 1: Fractions

Unit 2: Decimals

Unit 3: Percent

Mini Math Course:
Geometry for Grades 4-6th

Mini Math Course:
Pre-Algebra for Grades 4-6th

Grades 7-8ᵗʰ

Unit 4: Algebra 1
(includes pre-Algebra)

Unit 5: Geometry

Mini Math Course:
Probability

Mini Math Course:
Statistics

Looking Ahead to High School

Students need to take math every year. For most high schools, students begin with where they left off from middle school and complete as much of the math courses in the chain below as they can in four years of high school.

Standard Progression for Middle & High School for Science/Engineering Students:

Algebra 1	Geometry	Algebra 2	Precalculus	Calculus
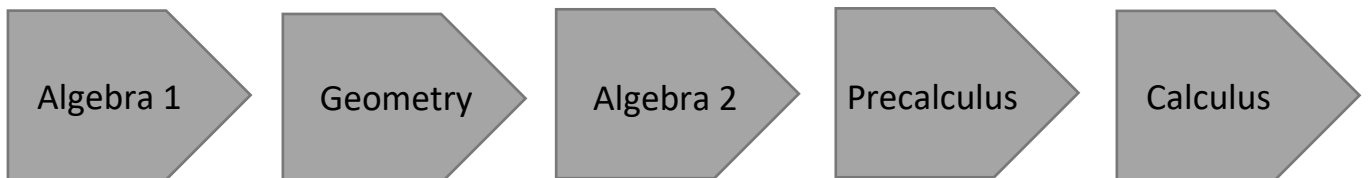
Students can begin their Algebra 1 coursework when they are ready, based on what they have mastered. Students need to be very comfortable with performing all four operations (addition, subtraction, multiplication and division) with both fractions and decimals, and also be fluent in handling ratios, proportion, and percent in order to be ready for Algebra 1.

College, universities and technical training vocational schools usually require completion up through Algebra 2 in order to apply to their programs. At the very least, they usually want to see the completion of a full four years of math courses for high school.

If your student is starting their high school years with Pre-Algebra, their math course progression will look like this:
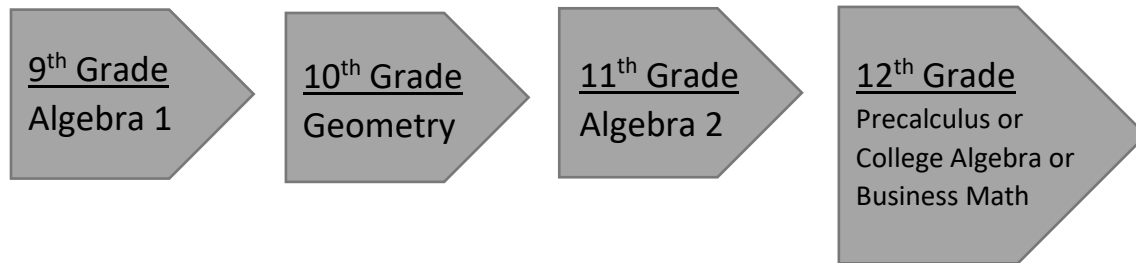
Starting 9th Grade with Pre-Algebra in High School:

9th Grade Pre-Algebra	10th Grade Algebra 1	11th Grade Geometry	12th Grade Algebra 2

This is the sequence for students that have not had any algebra prior to high school. There's not enough time to re-taking any coursework, so you'll need to be sure your student makes steady, consistent progress daily toward completing their yearly courses.

This progression is good for students that are not bound for science or engineering majors at colleges and universities.
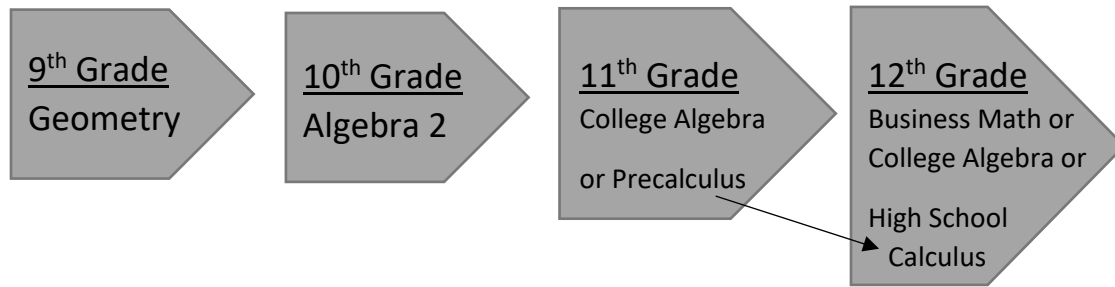
Starting 9ᵗʰ Grade with Algebra 1 in High School:

| 9ᵗʰ Grade Algebra 1 | → | 10ᵗʰ Grade Geometry | → | 11ᵗʰ Grade Algebra 2 | → | 12ᵗʰ Grade Precalculus or College Algebra or Business Math |

If your student has already completed Pre-Algebra in 8ᵗʰ grade, then they may start with Algebra 1 in high school, and they will finish Algebra 2 in 11ᵗʰ grade.

The fourth year (12ᵗʰ Grade) has three options:

- Precalculus – students will take this if they are interested in science or engineering studies in college
- College Algebra – this picks up where Algebra 2 leaves off; good for students interested in mathematics studies at college and universities
- Business Math (also called *Consumer Math* and *Commercial Math)* – practical math skills that are used in every day in marketing, commerce, and commercial businesses.

Note that interspersed in the progression are studies in other topics, such as probability, statistics, and logic. These are usually integrated throughout the four years at the discretion of the instructor.

Starting 9th Grade with Geometry in High School:

| 9th Grade Geometry | → | 10th Grade Algebra 2 | → | 11th Grade College Algebra or Precalculus | → | 12th Grade Business Math or College Algebra or High School Calculus |

If your student has already completed Algebra 1 in 8th grade, then they may start with Geometry in high school, and they will finish Algebra 2 in 10th grade.

The third *and* fourth years (11th & 12th Grade) have options:

- 11th Grade:
    - Precalculus – students will take this if they are interested in science or engineering studies in college
    - College Algebra – this picks up where Algebra 2 leaves off; good for students interested in mathematics studies at college and universities
- 12th Grade:
    - Business Math (also called *Consumer Math* and *Commercial Math)* – practical math skills that are used in every day in marketing, commerce, and commercial businesses.
    - College Algebra – this picks up where Algebra 2 leaves off; good for students interested in mathematics studies at college and universities. If you already took this in 11th Grade, then you'll pick Business Math instead.

For students interested in science and engineering majors, it is highly recommended to take an **AP Prep Course** during the year you take Calculus if you plan to take the AP ("Advanced Placement") Exam. This is a separate test outside of any tests issued during your Calculus course. If you pass the AP test, you can get college credit for the high school course. Note that it's not a one-for-one credit, meaning that each year-long class of high school AP credit usually translates to either one semester or one quarter for *one class* in college.

Dual Enrollment is when a student takes a class at a local community college when they are still in high school. Depending on how you want this course to affect your GPA, you may opt to have it count toward your high school credits, college credits, or in some cases, *both.* Some universities will not accept credit for dual course enrollment if it's already being used for high school, so you will have to choose which one you'd rather have the credit go towards (high school or college).

Things I do NOT recommend doing:

When we hear about students taking extra math classes in the summer, doubling up or trying to do only half the work so they can go at twice the speed through the course, my first question is usually: *"What's the rush?"*

If a student is really that far behind, no amount of cramming is going to catch them up. Our brains simply can't process that rapidly in a way that really sticks (can *you* remember the things you studied right before the big test? How much of those things do you remember now?). When you think about it, will the difference of a year or two really matter in the long run?

Why not take the time your student needs to really understand and make sense of the material now, when they have the time to devote to studies? They may not have this opportunity again once they get out in the work force.

Trying to do a crash course and learn math fast by doubling up on coursework or trying to catch up over summer holidays will actually set up *further behind*, not ahead, because you'll lose valuable time when your student starts to feel their confidence slacken and their belief about what they can do get weaker. The only way to make progress is to build on the student's confidence in their current abilities, in what they believe that they *can* do right now.

I had a teacher tell me once: *"If you learn it fast, you'll forget it fast"*. Your student needs time to think and process this new information in their courses, especially in classes as rigorous as high school courses tend to be. Instead, remember *"Slow is smooth, and smooth is fast."*

In Closing…

I hope this gives you a good idea about what's coming next after you work through our program and get into the high school years. We work hard to get your student ready for any option that they choose after they finish their work with us. There are so many great opportunities out there and even more ways to achieve them!

I highly recommend having a game plan, even if it's just a general outline, so you know your start and end points. You can figure out the rest in-between, but at least you know you are pointed in the right direction.

All the best to you and your family!

Aurora Lipper

Supercharged Math