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 different levels: Grades 4-6th, Grades 7-8th Middle School, and High School as follows:

Grades 4-6th:

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

Students may proceed to "Soft Approach Grades 7-8th" OR move straight into High School Algebra 1. Take assessment!

Soft Approach Grades 7-8th:

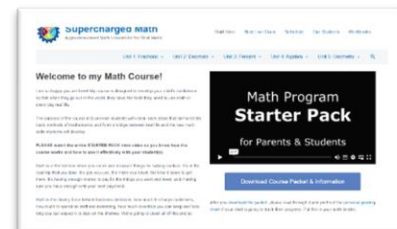7th Grade:
- Pre-Algebra
- Algebra 1 (first half)
- Probability

8th Grade
- Geometry (first half)
- Statistics

Students move into the standard Algebra 1 course or may opt for the Accelerated Course which focuses on the second half of both Algebra 1 and Geometry in one year.

High School:

- Algebra 1
- Geometry
- Algebra 2
- Financial Literacy

Students work through the math program either synchronously (following the live class schedule) or asynchronously (working at their own pace, on their own schedule).
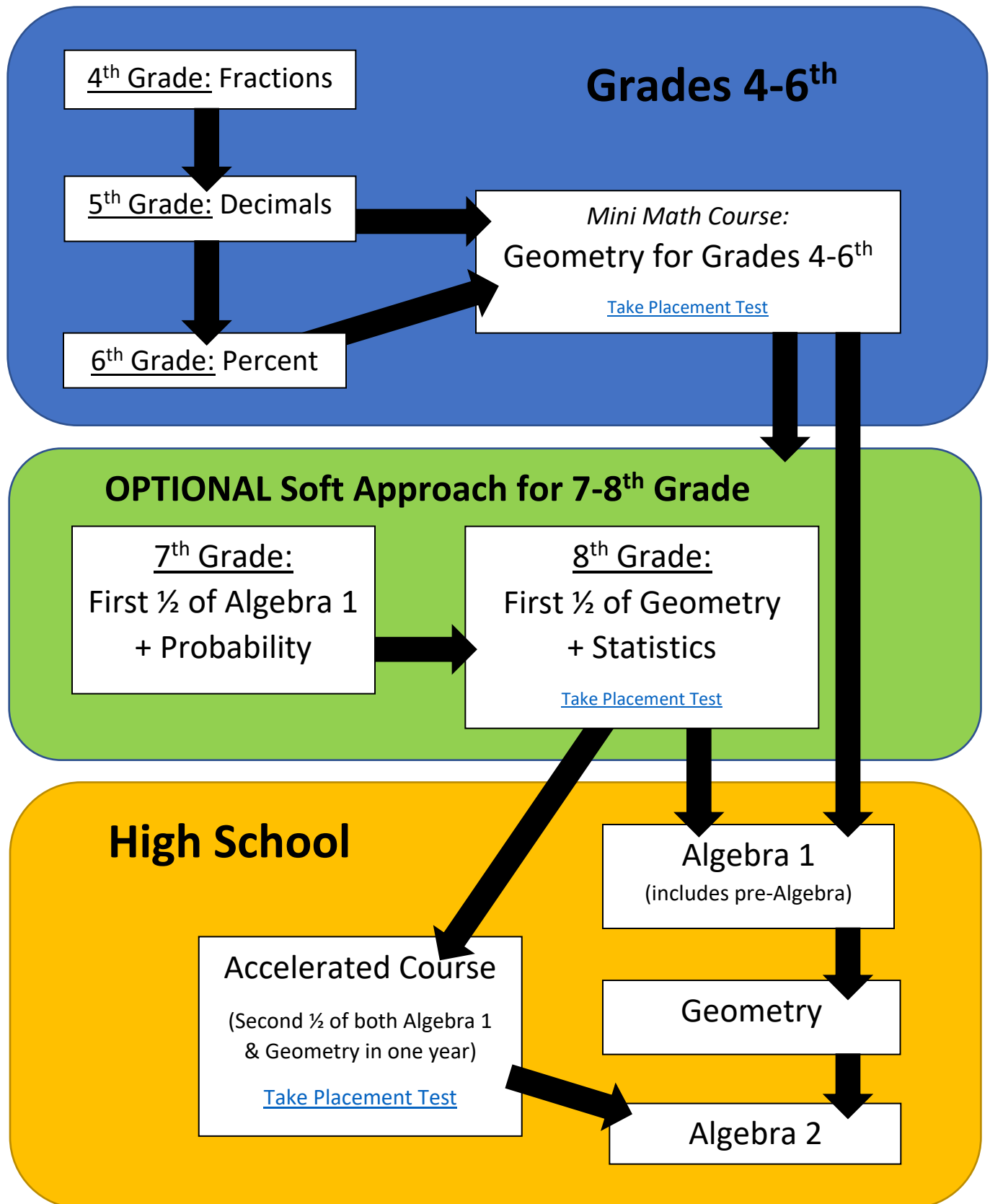
After attending a math lesson with a teacher (live or recorded), students work through the homework assignments (workbooks, activities, and projects). If your student gets stuck, there are instructional step-by-step videos and an answer key to help them through the workbooks.
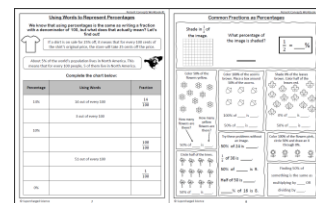
The *Study Hall* is entirely optional. It's a weekly small group private-tutoring session with a real teacher, open to all students (attending live classes or self-paced recordings) to ask any questions from any part of the math program at any time.
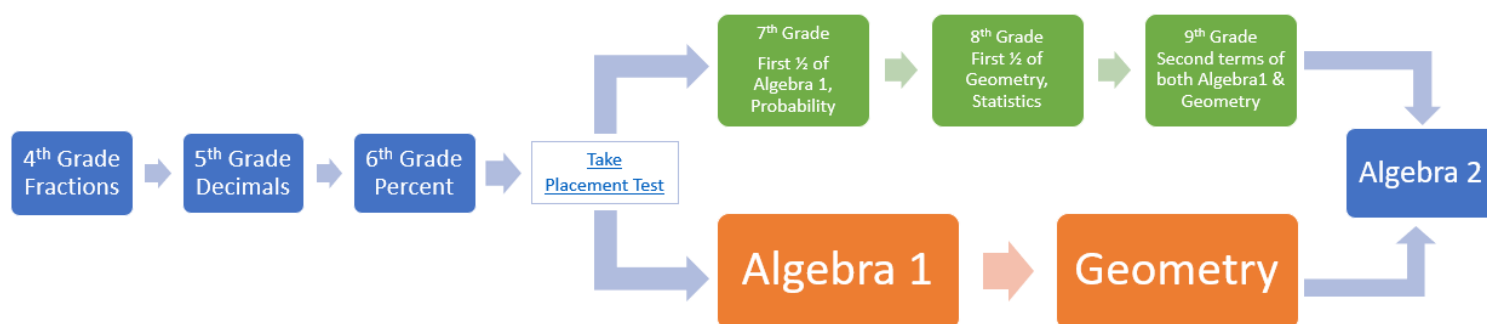
Not sure where to start? We have a quick math assessment you can use to get a rough idea where to being the program. There are also review tests in the back of every workbook to help place your student within the right area within the topic (Fractions, Decimals, Percent, Algebra and Geometry).

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. 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.

Grades 4-6th

4th Grade: Fractions

5th Grade: Decimals

6th Grade: Percent

Mini Math Course:
Geometry for Grades 4-6th

Take Placement Test

OPTIONAL Soft Approach for 7-8th Grade

7th Grade:
First ½ of Algebra 1 + Probability

8th Grade:
First ½ of Geometry + Statistics

Take Placement Test

High School

Accelerated Course

(Second ½ of both Algebra 1 & Geometry in one year)

Take Placement Test

Algebra 1
(includes pre-Algebra)

Geometry

Algebra 2

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Math Concepts Fourth and Fifth Grade

Fractions Expect to spend about a month per session for Fractions. 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 *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 Decimals.

Decimals Expect to spend about a month per session for Decimals. Please make sure that your student can do all four operations (addition, subtraction, multiplication, division) with fractions *before* starting this unit.

Students that complete *Decimals* will have the following concepts handled:
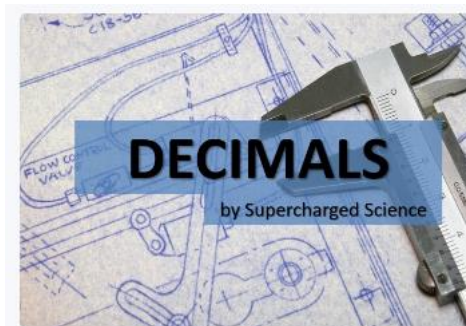
> **Decimals Session #1:** *Introduction to Place Value*
> Introducing decimals, building decimals to represent real-world problems, measuring in Metric System, place value for ones, tens, and hundreds.

> **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 2-3 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.

Students are now ready for Percent (we will finish Geometry Sessions #3-6 after Percent).

Math Concepts for Sixth Grade

Percent Expect to spend about a month per session for Percent. 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 *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.

Mini Math Course: Geometry for Grades 4-6th Expect to spend 2-3 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.)

If your student has not yet had any geometry, please make sure to do all sessions listed. If you've completed Sessions #1 & #2 previously, you'll start with Session #3.
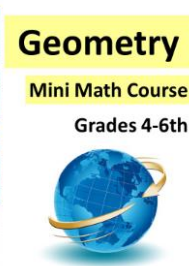
Students that complete Geometry for Grades 4-6th will have the following concepts handled:

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.

Math Concepts for Middle & High School

Students are now ready for either the *Soft Approach Middle School Math* (which covers the first half of Algebra 1) OR the more rigorous [High School Algebra 1](#) course (both courses include pre-algebra).

Note that Algebra 1 is taken when students are ready, not determined by age or grade level. Use the [Algebra 1 Placement Test](#) to assess your child's best next step.

It is strongly recommended for students going into the more rigorous High School Algebra 1 course to complete both [Probability](#) and [Statistics](#) *before* starting Algebra 1.

PARENTS! Please read pages 19-20 completely before making your decision!

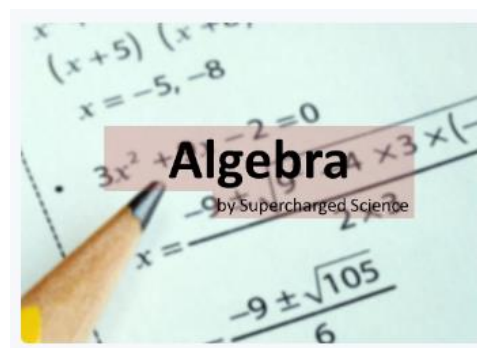For *Soft Approach Middle School Math*, go to the next page.

For the more rigorous *High School Math*, go to page 12.

Soft Approach Middle School Math (7th Grade)

If your child is not yet ready for the full Algebra 1 course, they can take a slower approach during 7th and 8th grade by focusing on foundational concepts and allowing them to grow and develop maturity in their mathematical skills and thinking processes.

Students will study the first half of both Algebra 1 and High School Geometry over a two-year period, which will provide a solid foundation and help the student be more prepared for the full challenges of these subjects in high school.

Students will start out with a full review of all math concepts covered in Fractions, Decimals, and Percent, start with pre-Algebra, then the first half of Algebra 1 (Sessions 1-4), and finish their year with probability. Students are now ready for the 8th grade year.

Soft Approach Middle School Math (8th Grade)

Students will continue their two-year *Soft Approach* study with a full review of all Algebra concepts covered in the previous year (Sessions 1-4), then move into the first half of Geometry (Sessions 1-6), and finish the year with a course in Statistics.

(If you're switching in from another course and starting 8th Grade math with us, please make sure your student has completed the topics covered in 7th grade before starting, as this is a 2-year course for Grades 7-8th.)
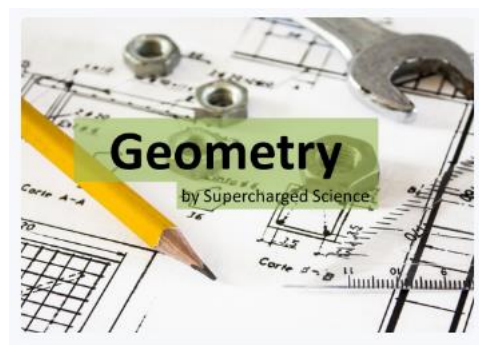
Materials for Geometry: Students are expected to bring to each class these math tools: protractor, compass, calculator (with the ability to do inverse, exponents, square roots, and trig functions – we recommend the TI-30Xa), ruler (with increments in both centimeters and inches), pencil, eraser, and math notebook or paper.

In addition to the regular math content, each geometry session includes a full hands-on Math Lab Build Project that students are expected to complete. Students will require special materials to do their lab projects (refer to the Geometry Unit for full shopping list) so please be prepared each month for the new build project assigned.

Students are now ready to either take *Algebra 1* OR the *Accelerated Course*:

- **Algebra 1 includes all 7 Sessions (including the 4 completed in 7th grade year)**
- **Accelerated Course includes Algebra 5-7 and Geometry 7-10 in one year**

Not sure which to take? Take the [Algebra 1 Mid Term Test](#) (covers concepts from Sessions 1-4). Students with a score 85% or higher may go onto the Accelerated Course.

Accelerated Course (9th Grade):

If your child has taken the *soft approach* 2-year course that covered the first half of both Algebra 1 and Geometry, *and* scored at least 85% on the Algebra 1 Mid Term Test, then this is the next step! (If not, please start with Algebra 1. There's no rush.)

Students begin with a full review of the first four sessions of Algebra 1 before moving into the second half of the course, finishing with a complete review and final test for all of Algebra 1 to complete their coursework.

The second half of the year starts with a full review of the first half of high school level Geometry before moving into the second half of the course, finishing with a complete review and final test for Geometry. Students end their year with an assessment to test their readiness for the next course, Algebra 2.

By completing the second half of each Algebra 1 and Geometry, students can be ready for Algebra 2. This approach, though initially slower, gives students the time they need to understand more complex concepts in the years to come.
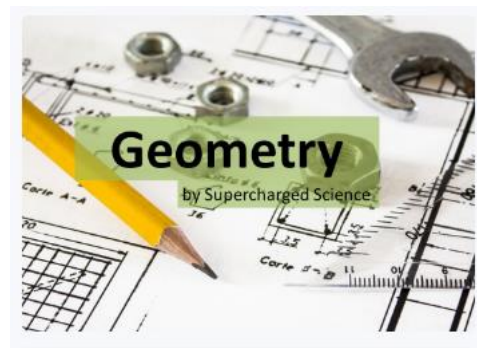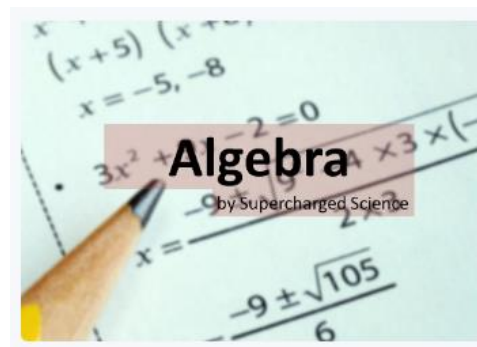
Why does this work? Students can really benefit from slowing down their pace in math during middle and high school years to give their cognitive thinking skills time to develop as well as their personal beliefs about math and how confident they feel with it. As math becomes more complex, it requires a deeper understanding of abstract concepts, logical reasoning, and problem-solving strategies. Allowing students to progress at a slower pace helps them build a strong foundation, giving them the mental maturity and confidence needed to grasp these challenging concepts more effectively and apply them successfully in future courses.

What is the Soft Approach Middle School Math? Students using this path will take more time initially with the fundamentals, completing the same math topics in 3-4 years instead 2 years. The emphasis is on a slower approach initially with plenty of review, ramping up to a regular high school pace near the end of their last term.

Students are now ready for Algebra 2.

High School Algebra 1

Algebra 1 Expect to spend two months on pre-Algebra, and a month per session for Algebra 1. 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 be fluent in handling ratios, proportion, and percent to be ready for algebra. Our first session is a two-month pre-algebra course, so all students can start out with the fundamentals.
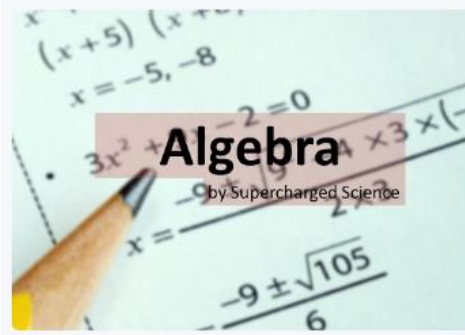
Students that complete *Algebra 1* will have the following concepts handled:

> **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 Geometry.

High School Geometry

Geometry Expect to spend 3 – 6 weeks per session for Geometry. This is a full High School level Geometry course.

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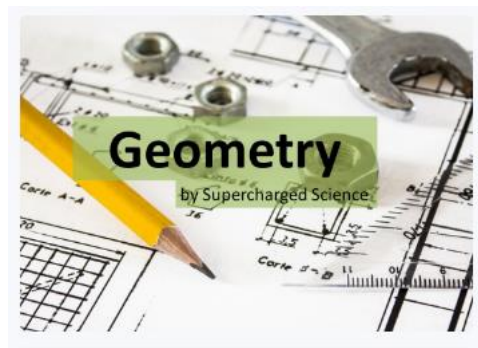
Students are expected to bring to each class these math tools: protractor, compass, calculator (with the ability to do inverse, exponents, square roots, and trig functions – we recommend the TI-30Xa), ruler (with increments in both centimeters and inches), pencil, eraser, and math notebook or paper.

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 to do their lab projects (refer to the Geometry Unit for full shopping list) so please be prepared before starting this course.

Students that complete *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.

Session #9: *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.

Session #10: *Arithmetic & Geometric Number Sequences, Geometry Proofs* Students explore numbers that follow specific patterns, finding the nth term, understanding the sum of terms, and applying sequences to real-world problems in fields like finance, engineering, and computer science. Students also learn how to prove geometric theorems through a sequence of deductive steps, employing postulates, theorems, and definitions. Key concepts include properties of shapes, angles, congruence, similarity, and the relationships between points, lines, and planes. The emphasis is on developing critical thinking and the ability to communicate mathematical reasoning clearly and rigorously.

Students are now ready for Algebra 2.

High School Math Topic Progression

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
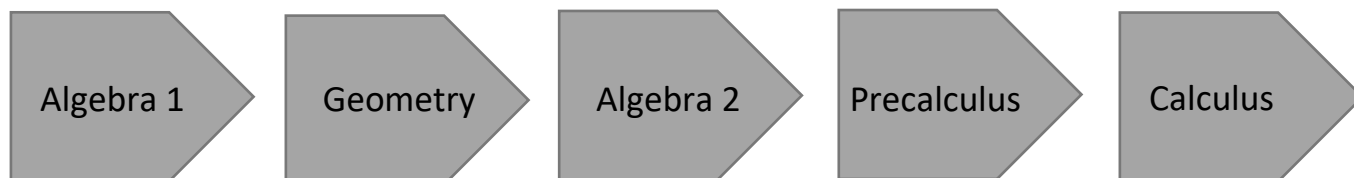
Students can begin their Algebra 1 coursework when they are ready, based on what they have mastered. Students need to be very comfortable with performing all four operations (addition, subtraction, multiplication and division) with both fractions and decimals, and also be fluent in handling ratios, proportion, 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:
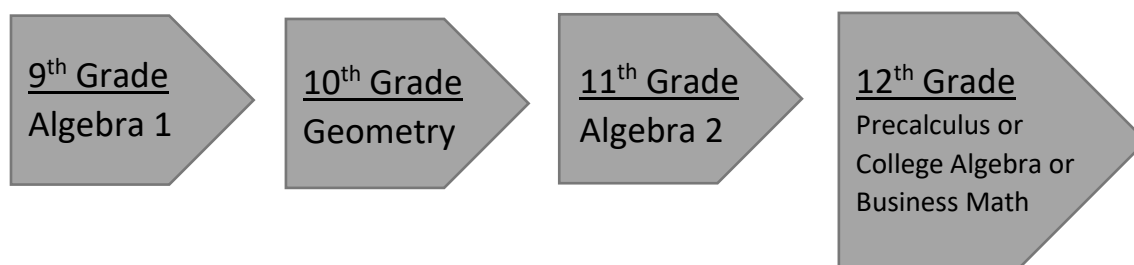
Starting 9th Grade with Pre-Algebra in High School:

9th Grade Pre-Algebra → 10th Grade Algebra 1 → 11th Grade Geometry → 12th Grade Algebra 2
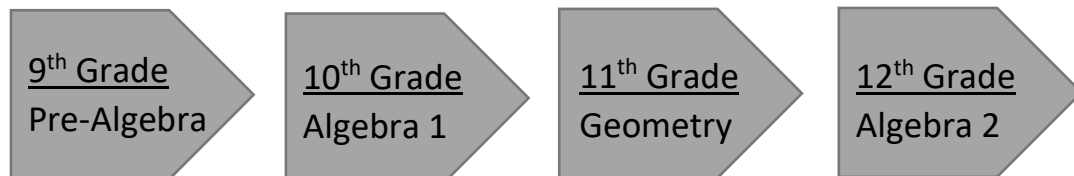
This is the sequence for students that have not had any algebra prior to high school. There's not enough time to re-taking any coursework, so you'll need to be sure your student makes steady, consistent progress daily toward completing their yearly courses.

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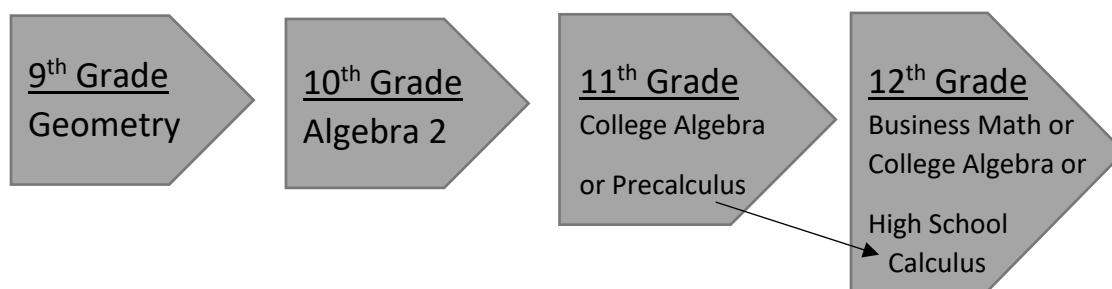
Starting 9th Grade with Algebra 1 in High School:

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:

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).

The Most Important Factors for Student's Math Success

I strongly encourage you to stay actively engaged your child's math education, even if math isn't your forte or you don't have time to teach math yourself. There's a lot you can do outside of the math lesson that will significantly increase your child's math success in the long-term.

Here are the top five factors that matter the most for students to succeed in math:

1. **Self-Efficacy:** Students' belief in their own math abilities significantly influences their achievement. The study done by ScienceDirect on the Effects of Accelerated Mathematics on Self-Efficacy and Growth Mindset examined how accelerated math programs affect students' self-efficacy and growth mindset, finding significant declines in both. While students' math grades dropped, their test scores remained steady, suggesting that acceleration may improve performance but negatively impact students' confidence and beliefs about their ability to succeed.

2. **Teacher Attitudes and Practices**: How the teacher feels about math significantly impacts student learning. When teachers exhibit low confidence in math themselves *or* in their student's performance (not being at the level the teacher thinks they should be at), it can lead to lower student achievement. *Math Anxiety* studies from Standford and Harvard find multiple factors that lead to lower math achievement in students and the importance of having teachers that are competent in math, passionate about teaching, and able to reach their students at their level.

3. **Curriculum and Instruction:** The structure and delivery of math curriculum significantly affects student success. Math curriculum programs like ours have positive effects on the student's conceptual understanding and problem-solving skills due to the content being delivered in all learning four modalities (visual, audio, kinesthetic, and digital ← pages 41-46).

4. **Student Attitudes:** Positive student attitudes toward math are linked to higher achievement. A study found students' perceptions and feelings about math significantly influence their learning success. Even *more* important are the attitudes students perceive in their teacher about their abilities – having a teacher that takes the time to meet students at their level, modeling best practices in thinking, logic and translation (like breaking word problems down into math equations), and celebrating success is far more impactful than endless rounds of drill worksheets, AI generated "click the correct answer" (which students can learn to "game the system") and traditional standardized testing, all of which can negatively impact their overall confidence and real-world applications of math.

5. **Parental Involvement:** Active engagement of parents in a child's education supports math success. Studies suggest that parental support and involvement can enhance students' math performance.

Your involvement in your child's math education, even if you aren't a math expert, can play a crucial role in your child's success in math. You are your child's best teacher – by stepping in and switching gears when the math level isn't challenging enough to downshifting the pace when they need more time with a concept will significantly affect your child's growth in mathematics. What this means is that it is really the encouragement and active engagement we *both* provide that will ultimately influence your child's success in math the most.

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