SUPERCHARGED MATH

MATH PROGRAM

Curriculum Guide Packet

Academic Year 2026-27

by Aurora Lipper

This course is designed to develop the confidence in your child to go out and explore their world, and give them the tools they need to use math in every day real life. We aim to provide students with clear, easy methods of mathematics and form a solid bridge of understanding between real life applications and the skills students develop.

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Welcome! This is your child's entry into the adventurous world of mathematics! Kids are natural explorers, experts at asking questions and being curious about the world around them.

Mathematics is a fantastic playground for imagination and creativity. Their eyes shine with excitement as they solve puzzles and unlock solutions on their own! We're here to help them feel happy and confident in math—let's get started!

Quick Start Guide

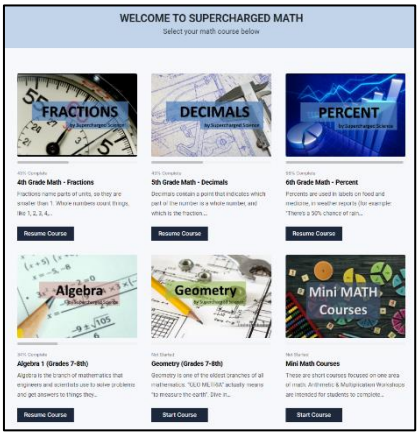
1. **Learn how the program works.** Watch the *STARTER PACK* video here.

2. **Select a Math Topic**: Click COURSES to select topic:

   Grades 4-6th: Fractions, Decimals, or Percent
   Not sure where to start? Click for assessment!

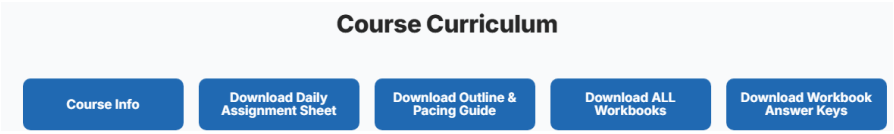
   Middle/High School:
   Take Placement Test first, then select:

   - *Soft Approach* Middle School Math*
   - Algebra 1 (includes pre-Algebra)
   - Geometry (prerequisite: Algebra 1)
   - Algebra 2 (prerequisite: Geometry) Placement Test
   - Financial Literacy (prerequisite: Percent)



*For more info, please refer to Math Level Progression Guide

3. **Download Course Materials** Use the blue buttons on the main course page to download your *Daily Homework Assignment Sheet*, *Pacing Guide,* and *Workbooks* (print daily or all at once).



4. **Click to start a Math Lesson** with a teacher. After the lesson, students work on their math assignment (workbook pages or activities) located below the math lesson. Math lesson videos are always at the start of each week, with additional teacher lessons throughout the week, used as needed.

How this course works

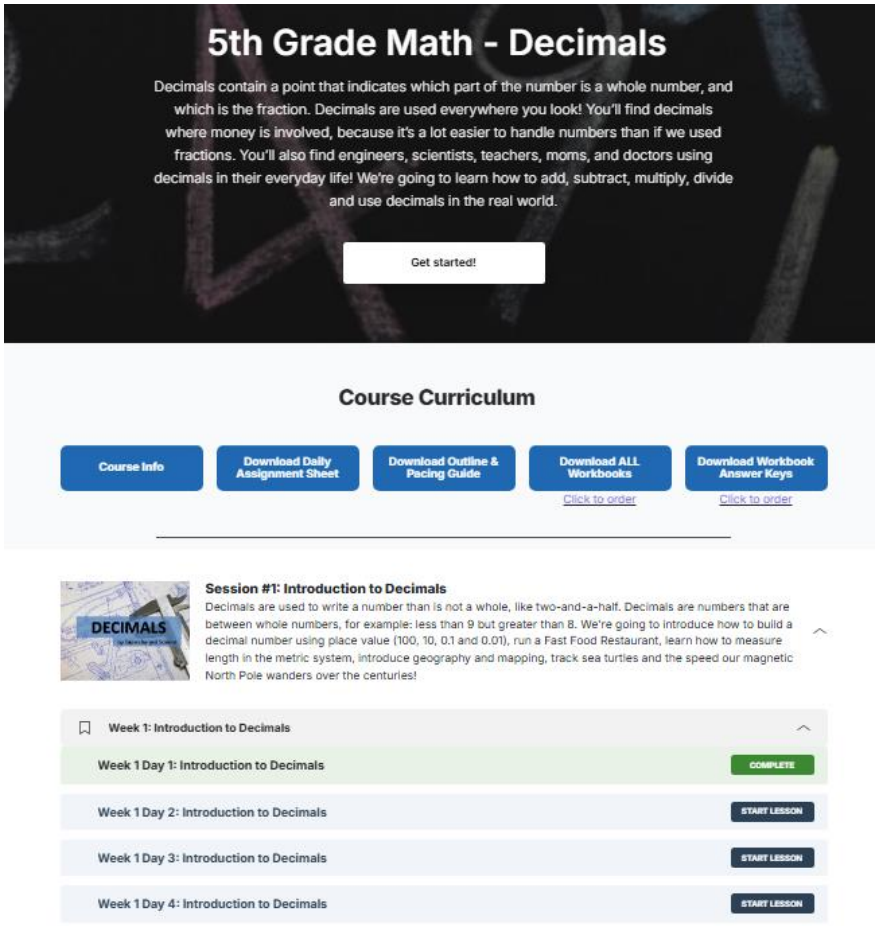
Format for the course Students will watch a math lesson with a teacher during the first two days of the week, and then complete their workbook assignments and activities based on that lesson. If they need extra help with the assignments, there is always a step-by-step instructional video included with every assignment.

Need more time with the teacher? We've recorded extra teacher-led lessons on Days 3 and (sometimes) Day 4, just in case your student needs more class time with the teacher.

Grading & Expectations Please help your student keep up their personal grade sheet every for the first few weeks, until they find their routine with classes and expectations. Each assignment is scored and recorded in the *Daily Assignment Sheet*.

Are you stuck on a math problem? If students have math questions during the week, we have several opportunities for support including our small-group private tutoring in our *Study Hall*.

Still have questions about this course? **Please review our FAQ.**



Materials for the year

Getting ready for a successful year of learning starts with having the right tools! Below, you'll find a simple list of materials your student will need to fully engage in hands-on activities, projects, and lessons throughout the year.

Many items are everyday supplies, while others (like special dice and geometry tools) add an exciting twist to learning. Be sure to gather these materials ahead of time, so your student is prepared for every challenge and discovery. Let's make this year a fantastic adventure in learning!

- Pencil and eraser
- Paper or notebook
- Protractor
- Compass
- Ruler (both metric and standard)
- Measuring tape (10-25')
- Grid paper (¼" or ½ "squares)
- Index cards
- Paper clips
- Rubber bands
- Scissors and tape
- String or yarn
- Two dice (6 sided)
- OPTIONAL: 4 to 6 special dice: either 10 sided or 12 sided or Polyhedral Dice

All workbooks, handouts, projects, activities, and labs are printable from our website. Please download the handouts you need for the week ahead of time.

Use the Daily Assignment Sheet *for links to all assignments for the entire year, a condensed version of this is available in the* Course Outline & Pacing Guide *for each course.*

Download Daily Assignment Sheet **Download Outline & Pacing Guide**

**High School Algebra 1 & Geometry requires specific materials for the special Project Builds, please find these items listed here: for Algebra 1 and also for Geometry.*

If your student needs additional help

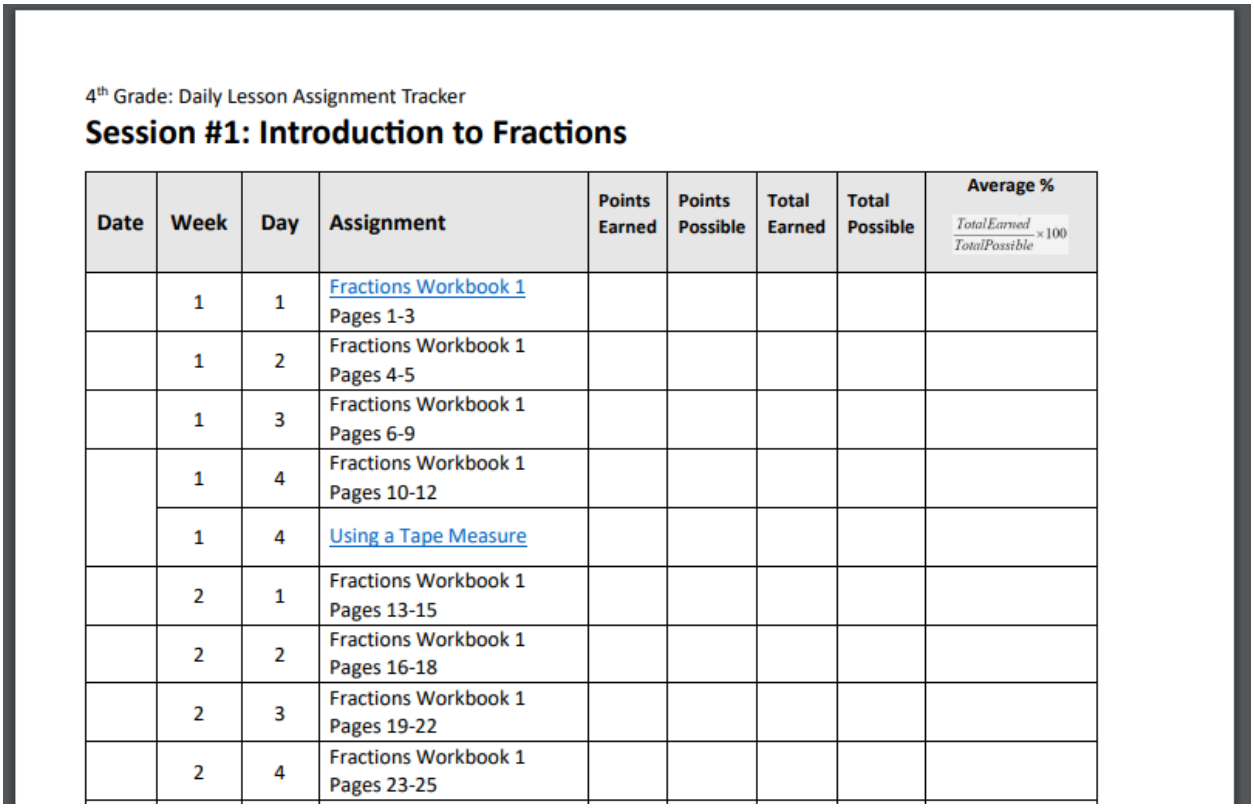
If your child is feeling lost during their math lesson, it's time to make use of our additional resources. We offer different options for additional help:

1. Watch the math class. Students that get the most out of this program also use the video speed controls, closed captioning, and re-watch the math lessons with a teacher as they take notes for even greater depth to learning.
2. The best time to do your homework is immediately following the teacher-led lesson. Use the homework help videos if you get stuck.
3. Participate in the live small-group private tutoring session. You can ask any questions about any part of the math program. (This is an additional option you can select.)
4. Snap a photo of your child's work and send it to us in an email with an explanation as to what specifically they are feeling stuck about – what do they have a question about? Email: aurora@superchargedscience.com

Special Note to Parents! I've created a short video at the start of each session that will highlight what we will be covering so you can understand ahead of time what's happening in our classes with your child.

Tracking Progress with the Daily Assignment Sheet

Students track their progress using the daily assignment tracker found at the top of each course page. This is a sample from *Fractions*:



4th Grade: Daily Lesson Assignment Tracker

Session #1: Introduction to Fractions

Date	Week	Day	Assignment	Points Earned	Points Possible	Total Earned	Total Possible	Average % $\frac{TotalEarned}{TotalPossible} \times 100$
	1	1	Fractions Workbook 1 Pages 1-3					
	1	2	Fractions Workbook 1 Pages 4-5					
	1	3	Fractions Workbook 1 Pages 6-9					
	1	4	Fractions Workbook 1 Pages 10-12					
	1	4	Using a Tape Measure					
	2	1	Fractions Workbook 1 Pages 13-15					
	2	2	Fractions Workbook 1 Pages 16-18					
	2	3	Fractions Workbook 1 Pages 19-22					
	2	4	Fractions Workbook 1 Pages 23-25					

Students that enter information daily and calculate their scores by hand (instead of using a computer) allows them to know their current average in class at any time and *really* have a sense of how they are doing and what grades really mean.

On the other hand, students that just "log in" to see their grades usually either don't check, don't care, or don't really understand what that grade really means.

By having students keep personal grade trackers, your child will know their averages in our classes all the time.

Parent's Role: It will take a few weeks of helping your student learn how to score their own work, record it on their grade sheet and recalculate their average. Please plan on assisting your child on a consistent (but not nagging) basis at first to help them get the hang of it.

Grading Student Work

Students will grade their own work after they complete their assignments, checking answers with the provided key for each assignment (including workbooks).

Here's how to score work:

1. If a problem is correct, add a point
2. If there's more than one part to a problem, each part is worth a point
3. Incorrect, incomplete, or omitted problems do not earn points
4. Add up the points and put it on your score sheet under "Points Earned"

But WAIT… There's more!!

1. STUDENTS: Go back and notice - what happened with the problems you did not earn points on?
2. If you fix it, you earn *a half point back* for each problem (after you fix it)
3. Recalculate your score and adjust your score on your grade sheet
4. Finish calculating your percentage

Parent Tip: *Don't get too fixated on that grade sheet.* Understand what the grade sheet tells you and what is doesn't. What we're looking for is *effort* and *progress*. If you notice near the start of the year your student only completed half the assignments and averaged a 60%, but after the second month, you notice that they've completed every assignment but are still hovering around a 65% average, celebrate that success!

This is also true for students that do all the assignments, but in the beginning only average about 50%, but then as the weeks go by, you notice that their points earned per assignment is closer to 80%. That's a huge win, even if their average still reports a 70%. Celebrate your student for a job well done!

We want students to mark the problems that earned points, and focus on what worked and what went well. Celebrate the ones they tackled successfully, and then go back and see what can be fixed or improved. (Don't jump straight to corrections, celebrate success first!)

Using Calculators as a Tool

Most students don't think twice about pulling out a calculator (or cell phone) when it comes to calculations, so here's how we'll use these in our math sessions.

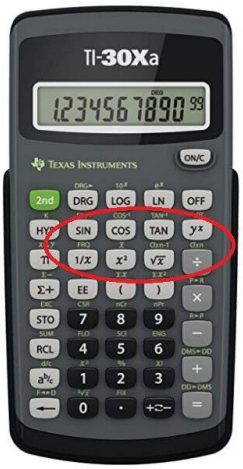
- *Please don't use a calculator until you complete both Fractions & Decimals*
- *Calculators are required for Percent, Algebra 1, Geometry & Algebra 2*

Calculators are great devices, as they skip the tedious calculations that bog down many students. However, your child needs to develop a feeling and understanding of number relationships, and using a calculator will short change this development.

Your child is ready for a calculator when they can easily ballpark their answer and know what to expect their answer to be. This will begin to happen for some students after we finish *Fractions* and *Decimals*. Students need to develop a practical sense of how numbers are related and how they interact.

Calculator recommendation for 6th – 8th Grade (Middle School):

Texas Instruments TI-30Xa Scientific Calculator

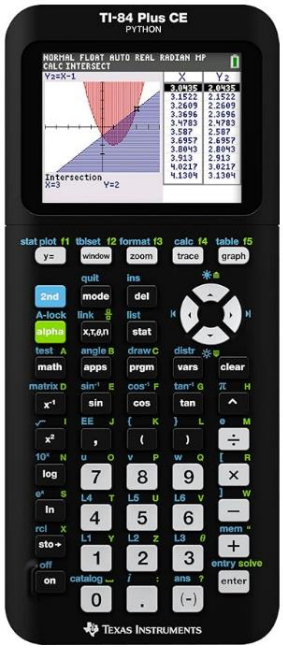


Your calculator should have these features:

- Easy for your child to READ THE DISPLAY
- Screen shows at least 10 digits
- Must-have buttons: inverse (labeled as 1/x or x^{-1}), exponents (labeled as y^x or x^y or 'EXP')
- Ability to do square roots (if it doesn't have a square root button, you can use the exponent button)
- Ability to do trig functions (SIN, COS, and TAN)

Calculator recommendation for 9th – 12th Grade (High School):

Texas Instruments TI-84 Graphing Calculator



This is the standard scientific calculator that can do everything a regular calculator can do, but it also draws graphs and handles data for statistics. It can also run programs and apps that are helpful for different situations.

I recommend students get one at the Algebra 2 level and begin to use it so they can be comfortable with it as they progress to more advanced classes, like Trigonometry and Calculus. This one is permitted on all standardized tests and typical math classes.

Please do not have your student use a cell phone app for a calculator.
I have two key reasons why I do not allow students to use cell phone calculators, even though they're convenient and practically glued to students' hands.

1. *Regular Calculators Are Designed for Math, Phones Are Not*

   Dedicated calculators are built specifically for mathematical calculations, making them more efficient and user-friendly than phone calculators. Students perform significantly better with a real calculator because it's easier to use, more powerful, and optimized for math functions. One major advantage is the tactile buttons, which help students make fewer mistakes by providing physical feedback, unlike touchscreens. Even if a phone has a fancy calculator app, it simply can't compete with a device designed for the job.

   2. Academic Restrictions on Phone Calculators

   Many standardized tests, entrance exams, and classrooms do not allow cell phone calculators. If a student relies on their phone for math, they may struggle when forced to switch to a regular calculator in high-stakes situations. Math is already challenging—why add unnecessary stress by using an unfamiliar tool? A student who is comfortable with a real calculator has a clear advantage.

I get it—cell phones are incredibly convenient. It's tempting to grab your phone instead of walking across the room or rummaging through a desk for a calculator. But making the effort to always use a proper calculator is a simple habit that delivers huge benefits. Ditching the phone calculator for math assignments is an easy, effective strategy that sets students up for success.

Special Note for Parents who Struggle with Math

As a parent, you may feel that that math isn't your thing, or that you really don't know much about it and even less confident about how to answer their math questions. Here's a couple of tips if you also struggle with math:

1. Avoid saying things like *"Here comes a tricky part…"* You'll be amazed at how many times your child will do things easily that you thought might be hard.

2. If you do not have happy memories about a particular math area, avoid saying *"That's ok, I was never very good at math either".* You are tempting your child to follow your lead. You wouldn't say, *"That ok to no learn to read… I was never good at it either."*

Let your student discover things for themselves, rather than describing how it is to be done in advance. In science, no scientist in their right mind would do an experiment they already know the answer to! Math is the same way. Let your child find different ways of doing things, different from what you were expecting. Discuss (without pointing out right or wrong) the many ways things can be done.

When your child makes mistakes, use this as an opportunity to explore what happened and see if something got confused somewhere, or needs to be reinforced. If your child tries several times to grasp something and it still isn't happening, **STOP**. *Your child is not failing.* They are giving you a message that either (a) they are not ready or (b) the approach needs to change or (c) some background information is missing.

It's best for your child to seek out their own readiness level naturally and on their own. Most children have different physical and mental timetables for development, and pushing a child with hopes of speeding things up or catching up will not only frustrate and discourage your child, but it also sends the message that they are not good enough at the level they currently are at.

…and MOST IMPPORTANTLY…

Most important of all, our learning should be enjoyable and fun. Learning and "math work" should be indistinguishable from play time. I sincerely hope that your child will share many happy hours with mathematics that are as rewarding and memorable as their experiences on the playground with their best friends.

How a Child Learns (Four Levels of Learning)

This math course provides a structure and a methodology for understanding numbers and developing a number sense, using those skills, and applying them to the real world. In this course, there are demonstrations, explanations, examples, skill practice, activities, games, and real-life applications in science and engineering.

This approach to learning mathematics allows students to progress through the four levels of learning easily. Here they are:

1. Rote memorization (being able to repeat something back, like multiplication tables, which is learned but not understood)
2. Understanding (comprehending or grasping the nature or meaning of something, as through teacher demonstrations and explanations)
3. Application (the act of putting something to use that has been learned and understood, as using math skills to build a house)
4. Correlation (associating what has been learned, understood, and applied with previous or subsequent learning; new connections made that were never there before.)

(If you'd like more information on the levels of learning, please click here.)

As a parent, you should not be concerned about repeating or preempting what your child is learning in our math classes, as many kids benefit from repetition and reinforcement in different contexts before they fully grasp a concept. Most of these concepts your child can practice using everyday things in life.

Children's learning is rarely predictable and tidy. Every child will have opportunities or needs that will suggest going through things at different speeds or in a particular order. For the most part, your child will be able to do this math course on their own, but there may be times when they'll need a little help. You know your child best, and by taking a little extra time to work individually with your child up front, this will really set them up for success long-term because you're helping them when they need it most.

Most of the time, your child will be working on more than one skill simultaneously. It is easier for students to have more than one area to work with at a time, as they can work on one area while letting the more difficult idea have time to sink in. Remind your student that it's ok if things don't seem to be presented in a controlled or logical way.

It's best for your child to seek out their own readiness level naturally and on their own. Most children have different physical and mental timetables for development, and pushing a child with hopes of speeding things up or catching up will not only frustrate and discourage your child, but it also sends the message that they are not good enough at the level they currently are at.

We already have more than enough stressed, anxious, overwhelmed, and discouraged children in the world. Please be willing to switch to a different step and drop an activity entirely if your child does not seem ready or interested. You may be surprised at how perfectly suited they are within a week or month for that very same activity or skill.

If your student does not like math, usually it's because they had an experience with math being hard, unpleasant, boring, and useless.

Our math curriculum focuses on making math a fun, natural part of their everyday life by showing the students that mathematics is a part of things that happen all around us, every day.

Making Math Practical and Useful in Everyday Life

Math is in the kitchen when you count and measure things for baking cookies. It's in the road trip that you take; the gas you use, the miles you travel, the time it takes to get there. It's having enough money to pay for the things you want and need, and making sure you have enough until your next paycheck.

Math is the driving force behind business decisions; how much to charge customers, how much to spend on staff and marketing, how much inventory you can keep and how long you can expect it to stay on the shelves.

Students will be learning through problem solving throughout this course. When your child figures out how something works, new connections are being make in ways that aren't possible teach just by *watching* something. By learning through *active* problem solving, students are more engaged in the learning process. This breaks your child out of the passively watching to taking an *active* role in their own education. Problem solving is a critical skill for life, even outside of mathematics. There are problems everywhere you look, and being able to tackle them is a *learned* skill we teach our kids.

Resist the temptation to have your child memorize something that they are struggling with. It is not *true* learning when you simply memorize a rule or process. Make the extra effort to understand *why* the ideas work, and learn how to apply those ideas. The material is more interesting and easier to remember and use in the future because it becomes integrated with their experience of the world.

If your child doesn't see how to go about solving a problem, use this as an opportunity to work on those problem-solving skills. Ask them if there are any ways to turn that problem into something they've seen before, something they already have experience with.

Encourage your child to wrestle with complex and difficult problems, and celebrate their partial answers and ideas, even if they are wrong or don't quite solve the problem. We're going for enthusiasm and effort more than accuracy, especially if they have not had a positive, happy experience with mathematics.

Most students have already had some math classes before coming to this course. Typical skills covered are: various types of numbers (whole, integer, mixed, negative, fraction, improper, decimal, percent), how to convert between these types of numbers, and how to add, subtract, multiply and divide any combination of them.

Most math courses over-focus on calculation skills. This makes math dry, boring, and full of procedures. It feels isolated and useless with endless problems that all look the same. Students lose all sense of numbers, and have no idea how to have fun playing with math. And one of the primary purposes of math, using math to ask questions and figure out answers, is completely lost.

Calculation skills are important, but they are not the whole deal. It's more like saying if you know how to spell, then you can write literature. There's so much more that goes into writing a book, or in our case, learning mathematics. However, it's not always straightforward to teach, so most math teachers focus on what they know and what is easily testable on an exam: how to calculate.

We will spend time mastering the mechanics of calculation skills, and also learn how to apply these to the real world. We will have a lot of fun discovering how exciting math can be when you really know how to use it!

Common Core Questions

Our math program is not aligned with common core, it is based on the math skills and way of thinking that is required for science and engineering students in college. It's more than a math curriculum – this program will teach your student how to think about real world problems, use math to analyze complex problems, and interpret their solutions back into the real world.

However, **this course exceeds ALL common core** standards and required skills. We cover so much more than common core. We have a common core index on the website for cross-referencing if you need it.

Our program is based on a hands-on approach to give kids a solid understanding of how to model the real world on paper, use math to solve complex problems, and then interpret your results so they make sense and you can use them in the real world.

Here's what you can expect your student to be able to do by the end of our course together:

<u>Operations and Algebraic Thinking</u>

- Use the four operations with whole numbers to solve problems.
- Learn how to use factors, multiples, decimals, and percent when solving real world application problems.
- Generate and analyze patterns.
- Interpret the real world and write down numerical expressions to solve.
- Analyze patterns and relationships.
- Gain a working understanding of numbers and what they represent.
- Understand and use ratios, including rational numbers (ratio of numbers)
- Be comfortable with negative numbers, absolute value, exponents (positive, negative, and fractional), and order of operations.

<u>Number and Operations in Base Ten</u>

- Generalize place value understanding for multi-digit whole numbers.
- Perform operations with multi-digit whole numbers and with decimals to millionths.
- Be able to compute multi-digit numbers and find common factors and multiples.
- Be comfortable with both scientific (6.02×10^{23}) and engineering notation 6.02 E23) when working with large numbers.

Number and Operations—Fractions, Decimals & Percent

- Be able to add, subtract, multiply and divide both fractions and decimals.
- Understand decimal notation for fractions, and be fluent in both.
- Understand percent, what it means, and how scientists make effective use of it

Measurement and Data

- Solve problems involving measurement and conversion of measurements.
- Represent and interpret data from the real world.
- Convert measurement units within a given measurement system (ex: km to cm).
- Be fluent in both standard and metric system and be able to use both interchangeably.
- Be able to analyze data and make specific recommendations based on numerical analysis (example: was your business profitable this month?).

Algebraic Expressions and Equations

- Apply understandings of arithmetic to algebraic expressions.
- Write and solve linear equations and inequalities.
- Represent and analyze quantitative relationships between dependent and independent variables.
- Writing slope-intercept equations and graphing two-variable inequalities.
- Solving polynomials using different methods, including factoring, and the quadratic equation
- This is a full Algebra 1 course! By the time you are done with our algebra course, you will be more than ready for high school Geometry.

Geometry

- Identify and work with shapes by properties of their lines and angles.
- Understand concepts of angle and measure angles.
- Graph points on the coordinate plane to solve real-world and mathematical problems.
- Solve real-world and mathematical problems involving area, surface area, and volume.
- Model the real-world using geometry, and then solve problems using geometric knowledge (examples: when analyzing properties of triangles, students might use Pythagorean theorem, similar triangles, etc.. to work toward a solution). We will be covering basic shapes such as spheres, ellipses, triangles, and curves.
- This is a full high-school level course! By the time you are done with our geometry course, you will be more than ready for Algebra 2.

Algebra 2

- Solve quadratic equations using various methods including factoring, completing the square, and the quadratic formula.
- Understand and apply functions, including linear, quadratic, exponential, and rational functions.
- Work with polynomials and perform operations like addition, subtraction, multiplication, division, and factoring.
- Analyze and solve systems of equations and inequalities, both algebraically and graphically.
- Explore and apply properties of logarithms and exponents.
- Study sequences and series, including arithmetic and geometric progressions.
- Solve problems involving radical expressions and equations.
- Work with complex numbers and understand their properties.
- Explore conic sections, such as circles, ellipses, parabolas, and hyperbolas, and solve related equations.
- Apply the concepts of functions and their inverses, including graphing and solving equations.
- Be prepared for advanced topics like trigonometry and pre-calculus, which will further build on the concepts learned in Algebra 2.

This course will thoroughly prepare your student for the more advanced topics they will encounter in later math courses.