9th Grade Math Curriculum

Our 9th Grade Math curriculum is designed to build on the foundational skills learned in middle school and equip students with the tools they need for success in high school Algebra and Geometry. Students develop confidence as they explore new topics through hands-on practice, creative projects, and problem-solving strategies.

A ninth-grade math curriculum is usually a course that introduces students to the more rigorous approach of high school classes. The following information will explain the steps you should take to meet your child's 9th grade math goals.

What Math Should a 9th Grader Already Know?

This year's curriculum focuses on deepening students' understanding of key concepts in Algebra and Geometry while strengthening their mathematical reasoning. Students will learn to solve systems of linear equations, work with polynomials, and explore quadratic functions. In Geometry, topics include surface area, volume, trigonometry, and geometric proofs.

Before starting this course, students should be comfortable with:

- Solving single-variable linear equations and inequalities
- Performing operations with positive and negative rational numbers
- Plotting on a coordinate plane and interpreting graphs
- Working with ratios, proportions, and percentages
- Understanding basic probability and statistics
- Being comfortable with quadrilaterals, polygons, triangles, and angles
- Applying order of operations and evaluating expressions

What Do 9th Graders Learn in Math?

The major math concepts covered for a ninth-grade curriculum are:

Algebra:

- Systems of Linear Equations
- Polynomials
- Quadratics
- Radical Expressions

Geometry:

- Surface Area & Volume
- Right Angle Geometry
- Number Sequences
- Geometric Proofs

A YEAR AT A GLANCE Be sure to include a bit of wiggle room in case your student needs extra time with a math topic. The sequence below is our recommendation for a full year course:

Grade 9: Algebra #5-7, Geometry #7-10, Review

September	**October**	**November**	**December**
Algebra #5 *Systems of Linear Equations*	Algebra #6 *Polynomials*	Algebra #7: *Quadratics*	Two weeks of extra practice if needed.
January	**February**	**March**	**April**
Geometry #7 *Surface Area*	Geometry #8 *Volume*	Geometry #9 *Right Angle Geometry*	Geometry #10: *Number Sequences & Geometric Proofs*
May	**June**	**July**	**August**
Algebra Labs #4-7 *Geometry Labs #5-8* Full Review (Algebra 1 & Geometry)	*Math Camp*		*Algebra & Geometry Review* *10-Session Workshop*

Special Note Regarding *Soft Approach* Middle School Math

The *Soft Approach* Math program allows students to take three years instead of two to cover their math concepts in pre-Algebra, Algebra 1, Geometry, Probability, & Statistics. Students will study the first half of both Algebra 1 and Geometry during their two years of middle school, which will provide a solid foundation and help the student be more prepared for the full challenges of these subjects in high school.

For 9th Grade, students will cover the second half of both Algebra 1 and Geometry in a single year. After this three-year cycle, students are ready for Algebra 2.

9th Grade Math Lesson Plan – 35 Weeks

Fall Term (Sept – Dec)

- Week 1: Graphing & Elimination
- Week 2: Substitution Method
- Week 3: Solving Systems of Inequalities, Slope-Intercept Review, & Word Problems
- Week 4: Proportional & Non-Proportional Relationships, Direct Variation
- Week 5: Introducing Polynomials
- Week 6: Factoring Polynomials
- Week 7: Difference of Squares, Sum of Cubes, Trinomials, Four Terms, & Mixed Factoring
- Week 8: Adding & Subtracting Polynomials; Common Denominators
- Week 9: Least Common Denominators; Square Roots & Radicals
- Week 10: Quadratics Formula
- Week 11: Graphing Quadratic Equations & Word Problems
- Week 12: Algebra 1 Review

Winter/Spring Term (Jan – May)

- Week 13: Surface Area of Prisms*
- Week 14: Surface Area of Pyramids
- Week 15: Surface Area Applications & Review
- Week 16: Volume of Rectangular Prisms & Cross Sections*
- Week 17: Volume of Triangular Prisms
- Week 18: Volume of Cylinders & Cones; Composite Figures
- Week 19: Volume Applications & Review
- Week 20: Angles, Right Triangles & the Pythagorean Theorem
- Week 21: Trigonometric Functions: Sine, Cosine
- Week 22: Trigonometric Functions: Sine, Cosine, Tangent
- Week 23: Trigonometry Applications
- Week 24: Arithmetic Number Sequences
- Week 25: Geometric Number Sequences
- Week 26: Geometric Proofs
- Week 27: Algebra Lab #4
- Week 28: Algebra Lab #5
- Week 29: Algebra Lab #6
- Week 30: Algebra Lab #7
- Week 31: Geometry Lab #5
- Week 32: Geometry Lab #6
- Week 33: Geometry Labs #7 & 8
- Weeks 34-35: Full Algebra 1 & Geometry Review

Please bring these materials with you to *every* Geometry Lesson with a teacher:

- Math journal / notebook
- Pencils and eraser
- Protractor
- Compass (one with a set screw adjustment)
- Ruler (inches and cm)
- Calculator

***Geometry Build Challenges!**

In addition to math lessons with teachers and working on homework assignments, students also explore how geometry is used in the science and engineering fields by designing and building several Geometry Challenge Projects!

Your child will need materials to participate in all the hands-on fun! Click for materials list.

Master Grade Sheet for Math Assignments

Students will grade their own work after they complete it by checking their answers with the provided key. Here's how to score your own work:

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

Date	Assignment	Points Earned	Points Possible	Total Earned	Total Possible	Average % $\frac{TotalEarned}{TotalPossible} \times 100$
9/5	Geometry Workbook #1, p 1-5	13	15	13	15	87%
9/12	Astronomy Project	22	25	35	40	88%
9/19	Equation Mazes 1-3	85	100	120	140	86%

5. Now *FIX IT!*
    a. Notice what happened with problems you worked on that did not earn points.
    b. If you can explain to someone older than you (usually an adult) what happened, where you went wrong, and what you're going to do to fix it, you can earn a *half* point back for each problem (after you fix it).
    c. Recalculate your score and adjust your score on your grade sheet (round up to the nearest whole number if you score a half point increment: 4.5 points becomes 5 points).
    d. Finish calculating the rest of the row. (Omitted problems do not generate "fix-it" points.)

At the end of each tracker page, start over (zero) with the "Total Possible Points" on the following page.

Algebra Session #5 Systems of Linear Equations

Date	Week	Day	Assignment	Points Earned	Points Possible	Total Earned	Total Possible	Average % $\frac{TotalEarned}{TotalPossible} \times 100$
	1	1	Algebra Workbook 6 Pages 1-4					
	1	2	Algebra Workbook 6 Pages 5-8					
	1	3	Algebra Workbook 6 Pages 9-13					
	1	4	Liquid Measures Practice					
	2	1	Algebra Workbook 6 Pages 14-16					
	2	2	Algebra Workbook 6 Pages 17-20					
	2	3	Algebra Workbook 6 Pages 21-24					
	2	3	Math Clocks					
	2	4	Algebra Workbook 6 Pages 25-28					
	2	4	Puzzle Train					
	3	1	Algebra Workbook 6 Pages 29-33					
	3	2	Algebra Workbook 6 Pages 34-35 (Test)					
	3	3	Linear Relations #2 Part 9					
	3	4	Linear Relations #2 Part 10					
	3	4	Systems of Eq Mazes					
	4	1	Linear Relations #2 Part 11					
	4	1	Card Sort					
	4	2	Linear Quiz Part 12					
	4	2	MATH-O					
	4	3	Linear Study Guide Part 13					
	4	3	Scavenger Hunt					
	4	4	Linear Unit Test Part 14					

Algebra Session #6 Polynomials

Date	Week	Day	Assignment	Points Earned	Points Possible	Total Earned	Total Possible	Average % $\frac{TotalEarned}{TotalPossible} \times 100$
	5	1	Algebra Workbook 7 Pages 1-4					
	5	2	Algebra Workbook 7 Pages 5-8					
	5	3	Algebra Workbook 7 Pages 9-12					
	5	4	Measurement Practice					
	6	1	Algebra Workbook 7 Pages 13-16					
	6	2	Algebra Workbook 7 Pages 17-19					
	6	3	Algebra Workbook 7 Pages 20-22					
	6	3	Polynomial Mazes					
	6	4	Algebra Workbook 7 Pages 23-24					
	6	4	Pyramid Puzzle					
	7	1	Algebra Workbook 7 Pages 25-29					
	7	2	Algebra Workbook 7 Pages 30-33					
	7	3	Algebra Workbook 7 Pages 34-35					
	7	3	Flip Book					
	7	4	Complete the Square					
	7	4	Algebra Workbook 7 Pages 36-37 (Test)					
	7	4	Math Challenge					

Algebra Session #7 Quadratics

Date	Week	Day	Assignment	Points Earned	Points Possible	Total Earned	Total Possible	Average % $\frac{TotalEarned}{TotalPossible} \times 100$
	8	1	Algebra Workbook 8 Pages 1-3					
	8	2	Algebra Workbook 8 Pages 4-6					
	8	3	Algebra Workbook 8 Pages 7-10					
	8	4	Algebra Workbook 8 Pages 11-13					
	9	1	Algebra Workbook 8 Pages 14-16					
	9	2	Algebra Workbook 8 Pages 17-20					
	9	3	Algebra Workbook 8 Pages 21-25					
	9	4	Algebra Workbook 8 Pages 26-28					
	9	4	Quadratic Bingo					
	10	1	Algebra Workbook 8 Pages 29-31					
	10	2	Algebra Workbook 8 Pages 32-34					
	10	3	Quadratic Battleship					
	10	4	Algebra Workbook 8 Pages 35-37 (Test)					
	11	1	Quadratic Card Sort					
	11	2	Quadratic Clue Review					
	11	3	Quadratic Scavenger Hunt					
	11	4	Math Challenge					
	12	1-4	Full Algebra Review & Test					

Geometry Session #7: Surface Area

Date	Week	Day	Assignment	Points Earned	Points Possible	Total Earned	Total Possible	Average % $\frac{TotalEarned}{TotalPossible} \times 100$
	13	1	#4: p. 1-7					
	13	2	Geometry Packet #4: Part 1					
	13	3	Packet #4: Part 2					
	13	4	Packet #4: Part 3					
	13	4	Challenge: Solar Cookie Oven					
	14	1	#4: p. 8-11					
	14	2	Packet #4: Review Quiz					
	14	3	Packet #4: Part 4					
	14	4	Packet #4: Part 5					
	14	4	Scavenger Hunt					
	15	1	Dominoes Activity					
	15	1	Coloring Review Activity					
	15	2	Matching Game Review					
	15	2	28 Stations Review					
	15	3	Surface Area Study Guide					
	15	4	Surface Area Test					

Geometry Session #8: Volume

Date	Week	Day	Assignment	Points Earned	Points Possible	Total Earned	Total Possible	Average % $\frac{TotalEarned}{TotalPossible} \times 100$
	16	1	#4: p. 12-13 (top half)					
	16	2	Geometry Packet #5 Part 1					
	16	3	Packet #5: Part 2					
	16	4	Volume Mazes					
	16	4	Challenge: Geology Rock Hound					
	17	1	#4: p. 13 (bottom half)					
	17	2	Geo Packet #5 Part 3					
	17	3	Cut & Paste Activity					
	17	4	Packet #5 Review Quiz					
	18	1	#4: p. 14-19					
	18	2	Packet #5 Part 4					
	18	3	Packet #5 Part 5					
	18	4	Scavenger Hunt					
	19	1	Cross Section Card Sort					
	19	1	Error Analysis					
	19	2	28 Station Review					
	19	3	Volume Study Guide					
	19	4	Volume Test					

Geometry Session #9: Right Angle Geometry

Date	Week	Day	Assignment	Points Earned	Points Possible	Total Earned	Total Possible	Average % $\frac{TotalEarned}{TotalPossible} \times 100$
	20	1	Trigonometry Workbook Pages 1-7					
	20	2	Trigonometry Workbook Pages 8-11					
	20	3	Trigonometry Workbook Pages 12-15					
	20	4	Activity: Scavenger Hunt (The Coordinate Plane)					
	21	1	Trigonometry Workbook Pages 16-21					
	21	2	Trigonometry Guided Notes Pages 1-7					
	21	3	Trigonometry Guided Notes Pages 8-11					
	21	4	Activity: Sum Em Up					
	22	1	Trigonometry Guided Notes Pages 12-13					
	22	2	Trigonometry Guided Notes Pages 14-15					
	22	3	Trigonometry Guided Notes Pages 16-19					
	22	4	Review: Eight Stations					
	23	1	Trigonometry Workbook Pages 22-24					
	23	2	Trigonometry Guided Notes Pages 20					
	23	3	Trigonometry Guided Notes Pages 21					
	23	4	Trigonometry Guided Notes Pages 22					

Geometry Session #10: Advanced Geometry Topics; Labs; Reviews

Date	Week	Day	Assignment	Points Earned	Points Possible	Total Earned	Total Possible	Average % $\frac{TotalEarned}{TotalPossible}\times 100$
	24	1	Arithmetic Sequences #1					
	24	2	Arithmetic Sequences #2					
	24	3	Arithmetic Sequences #3					
	24	4	Arithmetic Sequences #4					
	25	1	Geometry Sequences #1					
	25	2	Geometry Sequences #2					
	25	3	Geometry Sequences #3					
	25	4	Geometry Sequences #4					
	26	1	Proofs Set (#1-5)					
	26	2	Proofs Set (#6-10)					
	27	1-4	Geometry Review & Test					
	28	1-4	Algebra Lab #4					
	29	1-4	Algebra Lab #5					
	30	1-4	Algebra Lab #6					
	31	1-4	Algebra Lab #7					
	32	1-4	Geometry Lab #5					
	33	1-4	Geometry Lab #6					
	34	1-4	Geometry Labs #7 & 8					
	35	1-4	Full Algebra 1 & Geometry Review					