7th Grade Math Curriculum

Our goal is to make sure students complete middle school with not only the math skills they need to be successful in their future high school courses, but also with the confidence they need to explore and discover as they continue to learn about the world around them.

A seventh-grade math curriculum is usually a course that gets the student ready for *Algebra*. You can use this seventh-grade math curriculum as either your main homeschool program or as a supplement to another homeschool curriculum or a traditional school. The following information will explain the steps you should take to meet your child's 7th grade math goals.

What Math Should a 7th Grader Already Know?

A seventh-grade math curriculum covers four main areas of math: Pre-Algebra, Geometry, Probability and Statistics. Students are ready for seventh-grade math when they are very comfortable performing all four operations (additional, subtraction, multiplication and division) for fractions and decimals, and also be fluent in handling ratios, proportion, and percent. Students should also have a basic understanding of simple 2D geometric shapes such as the square, rectangle, triangle, trapezoid, parallelogram and circle.

What Do 7th Graders Learn in Math?

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

- Number Sense
- Pre-Algebra: Operations on Integers
- Pre-Algebra: Variables & Expressions
- Algebra: Multi-Step Equations
- Algebra: Rational Numbers
- Algebra: Inequalities
- Algebra: Graphing
- Geometry: Shapes & Constructions
- Geometry: Plane Geometry
- Ratio and proportional relationships
- Experimental & Theoretical Probability
- Dependent & Independent Probability Events

7th Grade Math Goals and Objectives

By the end of the year, your seventh grader will be able to do the following:

1. Gain proficiency in operating with rational numbers
2. Use rational numbers in both fraction and decimal form
3. Examine proportional relationships and apply them to practical applications
4. Draw, construct, build, and describe basic geometric shapes
5. Solve real world problems where students take measurements in both standard and metric systems (including angle measurement) to calculate area and volume
6. Expand on the fundamental operations of integers, fractions, mixed numbers, and decimals interchangeably
7. Analyze and interpret scientific data from real-world problems
8. Use math properties of specific operations to create equivalent equations
9. Write mathematical equations to describe real-world scenarios and be able to solve these equations using algebra

Special Note Regarding 7th & 8th Grade Math Schedules

We recommend taking two years to complete both a full year-long Algebra course (which also includes pre-Algebra) and a middle school Geometry course.

Start by covering the first half of Algebra (begin with pre-Algebra) and then move into the first half of Geometry during the 7th grade year. You will cover the second halves of both Algebra and Geometry during the 8th grade year, so by the time students finish their 8th grade year, they will have completed both Algebra 1 and middle school level Geometry, and be ready for either Algebra 2 or High School Geometry (whichever is offered for the 9th grade year for their school).

☑ 7th Grade covers Algebra Sessions 1-4; Geometry: Sessions 1-6; Probability

☑ 8th Grade covers Algebra Sessions 5-7; Geometry: Sessions 7-10; Statistics

☑ You may do Algebra all in one year by going through all sessions of Unit 4: Algebra

☑ Please complete Algebra up through Session #4 (Graphing) before starting Geometry

7TH AND 8TH GRADE STUDY SCHEDULE

This is an example of the two-year schedule that covers the first half of both Algebra 1 (with pre-Algebra) and Geometry along with a course in Probability in the 7th Grade year; the second halves of both Algebra 1 and Geometry along with a course in Statistics in the 8th Grade year.

Grade 7: Pre-Algebra, Algebra 1, Geometry & Probability

September Unit 4: Algebra #1 (*Pre-Algebra) Operations on Integers*	**October** Unit #4: Algebra #1 *(Pre-Algebra) Variables, Terms & Expressions*	**November** Unit 4: Algebra #2 *Multi-Step Equations*	**December** *Algebra Review*
January Unit 4: Algebra #3 *Inequalities*	**February** Unit 5: Geometry #1 & 2 *Shapes, Lines & Angles*	**March** Unit 5: Geometry #3-6 *Plane Geometry*	**April** Unit 4: Algebra #4 *Graphing*
May Probability *Mini Math Course*	**June** Math Camp	**July**	**August** 8th Grade Review (Partial)

Grade 8: Algebra 1, Geometry & Statistics

September Unit 4: Algebra #2-4 *Review of Multi-Step Equations, Inequalities & Graphing*	**October** Unit 4: Algebra #5 *Linear Systems of Equations*	**November** Unit 4: Algebra #6 *Polynomials*	**December** *Algebra Review*
January Unit 4: Algebra #7 *Quadratic Equations*	**February** Unit 4: Algebra #7 *Quadratic Equations* Unit 5: Geometry #1 *Transformations*	**March** Unit 5: Geometry #7-8 *3D Geometry: Surface Area & Volume*	**April** Unit 5: Geometry #9-10 *Trigonometry Essentials Mini Math Course*
May Statistics *Mini Math Course*	**June** Math Camp	**July**	**August** 8th Grade Review (Full)

7th Grade Math Lesson Plan – 35 Weeks

Fall Term (Sept - Dec)

- Week 1: Prime Factorization (Algebra Workbook #1 Pages 1-6)
- Week 2: Number Line, Positive & Negative Numbers (Algebra Workbook #1 Pages 7-23)
- Week 3: Operations on Integers (Algebra Workbook #1 Pages 24-37)
- Week 4: Exponents (Algebra Workbook #2 Pages 1-11)
- Week 5: Equivalent Expressions (Algebra Workbook #2 Pages 12-17)
- Week 6: Like & Unlike Terms (Algebra Workbook #2 Pages 17-25)
- Week 7: Order of Operations (Algebra Workbook #2 Pages 26-36)
- Week 8: Algebra Review
- Week 9: Solving One-Step Equations (Algebra Workbook #3 Pages 1-8)
- Week 10: Solving Two-Step Equations (Algebra Workbook #3 Pages 9-16)
- Week 11: Solving Two-Step Equations (Algebra Workbook #3 Pages 17-23)
- Week 12: Word Problems (Algebra Workbook #3 Pages 24-37)
- Week 13: Algebra Review

Winter Term (Jan - March)

- Week 14: Rational Numbers & Number Lines (Algebra Workbook #4 Pages 1-11)
- Week 15: Inequalities & Absolute Value (Algebra Workbook #4 Pages 12-16)
- Week 16: Solving Inequalities with Absolute Value (Algebra Workbook #4 Pages 17-26)
- Week 17: Relations & Functions & Review (Algebra Workbook #4 Pages 27-37)
- Week 18: Constructing Circles (Geometry Workbook #2: Pages 1-10)
- Week 19: Constructing Angles (Geometry Workbook #2: Pages 12-16)
- Week 20: Constructing Quadrilaterals (Geometry Workbook #2: Pages 17-21)
- Week 21: Lines & Angles (Geometry Workbook #2: Pages 22-36)
- Week 22: Plane Geometry: Circles (Geometry Workbook #3: Pages 1-4)
- Week 23: Plane Geometry: Quadrilaterals (Geometry Workbook #3: Pages 5-11)
- Week 24: Plane Geometry: Triangles & Trapezoids (Geometry Workbook #3: Pages 12-17)
- Week 25: Plane Geometry: Composite Figures (Geometry Workbook #3: Pages 19-22)
- Week 26: Plane Geometry: Similarity (Geometry Workbook #3: Pages 23-30)
- Week 27: Geometry Review

Spring Term (April - May)

- Week 28: Graphing Coordinate Points (Algebra Workbook #5: Pages 1-8)
- Week 29: Graphing Linear Equations (Algebra Workbook #5: Pages 9-16)
- Week 30: Graphing Slope-Intercept Form & Review (Algebra Workbook #5: Pages 17-29)
- Week 31: Probability (Simple Probability & Sample Space)
- Week 32: Probability (Experimental & Theoretical Probability)
- Week 33: Probability (Independent & Dependent)
- Week 34: Probability (Review of Probability)
- Week 35: Review

Completing Algebra 1 in ONE YEAR (instead of two)

The following is for students who are doing a complete Algebra 1 course in one year, starting with pre-Algebra. If you go this route, you will only study algebra so the following year will include a full year of geometry and must also include probability, data and statistics studies.

NOTE: Unit 5 Geometry requires Algebra, so you must complete at least up through Unit 4 Algebra: Session 4 (Graphing) before starting Unit 5: Geometry.

STUDY SCHEDULE: FULL ALGEBRA 1 COURSE

This is an example of the schedule that covers a full year of only Algebra 1 (with pre-Algebra).

September Unit 4: Algebra #1 (*Pre-Algebra) Operations on Integers*	**October** Unit #4: Algebra #1 *(Pre-Algebra) Variables, Terms & Expressions*	**November** Unit 4: Algebra #2 *Multi-Step Equations*	**December** *Algebra Review*
January Unit 4: Algebra #3 *Rational Numbers & Inequalities*	**February** Unit 4: Algebra #4 *Graphing*	**March** Unit 4: Algebra #5 *Systems of Linear Equations*	**April** Unit 4: Algebra #6 *Polynomials*
May Unit 4: Algebra #7: *Quadratics*	**June** Math Camp	**July**	**August** Review before starting next level

Algebra 1 Math Lesson Plan – 36 Weeks

Fall Term (Sept - Dec)

- Week 1: Prime Factorization (Algebra Workbook #1 Pages 1-6)
- Week 2: Number Line, Positive & Negative Numbers (Algebra Workbook #1 Pages 7-23)
- Week 3: Operations on Integers (Algebra Workbook #1 Pages 24-37)
- Week 4: Exponents (Algebra Workbook #2 Pages 1-11)
- Week 5: Equivalent Expressions (Algebra Workbook #2 Pages 12-17)
- Week 6: Like & Unlike Terms (Algebra Workbook #2 Pages 17-25)
- Week 7: Order of Operations (Algebra Workbook #2 Pages 26-36)
- Week 8: Algebra Review
- Week 9: Solving One-Step Equations (Algebra Workbook #3 Pages 1-8)
- Week 10: Solving Two-Step Equations (Algebra Workbook #3 Pages 9-16)
- Week 11: Solving Two-Step Equations (Algebra Workbook #3 Pages 17-23)
- Week 12: Word Problems (Algebra Workbook #3 Pages 24-37)
- Week 13: Algebra Review

Winter/Spring Term (Jan - May)

- Week 14: Rational Numbers & Number Lines (Algebra Workbook #4 Pages 1-11)
- Week 15: Inequalities & Absolute Value (Algebra Workbook #4 Pages 12-16)
- Week 16: Solving Inequalities with Absolute Value (Algebra Workbook #4 Pages 17-26)
- Week 17: Relations & Functions & Review (Algebra Workbook #4 Pages 27-37)
- Week 18: Coordinate Points (Algebra Workbook #5: Pages 1-8)
- Week 19: Linear Equations (Algebra Workbook #5: Pages 9-16)
- Week 20: Slope-Intercept Form (Algebra Workbook #5: Pages 17-29)
- Week 21: Graphing Inequalities (Algebra Workbook #5: Pages 30-36)
- Week 22: Algebra Review
- Week 23: Systems of Linear Equations (Algebra Workbook #6: Pages 1-8)
- Week 24: Solving with Elimination (Algebra Workbook #6: Pages 9-13)
- Week 25: Solving with Substitution (Algebra Workbook #6: Pages 14-28)
- Week 26: Solving Systems of Inequalities (Algebra Workbook #6: Pages 29-35)
- Week 27: Introducing Polynomials (Algebra Workbook #7: Pages 1-12)
- Week 28: Factoring Polynomials (Algebra Workbook #7: Pages 13-24)
- Week 29: Polynomial Multiplication (Algebra Workbook #7: Pages 25-31)
- Week 30: Polynomial Standard Form (Algebra Workbook #7: Pages 32-37)
- Week 31: Quadratics (Algebra Workbook #8: Pages 1-16)
- Week 32: Quadratics: Square Roots (Algebra Workbook #8: Pages 17-26)
- Week 33: Quadratic Formula (Algebra Workbook #8: Pages 27-31)
- Week 34: Graphing Quadratic Functions (Algebra Workbook #8: Pages 32-34)
- Week 35: Graphing Quadratic Functions (Algebra Workbook #8: Pages 35-38)
- Week 36: Algebra Review