LESSONS
1–30

UNIT
1

Simply Good and Beautiful

PRE-ALGEBRA

COURSE BOOK 1

MATH
8

The Good and the Beautiful
CURRICULUM

COURSE BOOK 1

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About the Course

SUPPLIES NEEDED

- *Simply Good and Beautiful Pre-Algebra Course Books 1, 2, 3,* and *4*
- *Simply Good and Beautiful Pre-Algebra Answers and Solutions*
- *Simply Good and Beautiful Math Scratch Pad* or other scratch paper
- Device to access videos
- Scientific calculator
- 2 standard dice
- Colored pencils
- Highlighter
- Protractor
- Ruler
- Tape or glue
- Compass
- Scissors

COURSE OVERVIEW

Pre-Algebra consists of Course Books 1, 2, 3, and 4. There are 120 total lessons divided into four units. Each unit ends with a unit review, assessment, and enrichment activity. The course is designed to be completed by the student independently, but the parent/teacher can choose to be as involved in the lessons as he or she would like.

GETTING STARTED

Simply open the first course book. The student may choose to watch the video lesson or just read the lesson overview if he or she feels confident in the lesson topic. Please note that videos may contain material not included in the written lesson overview. After completing the video and/or lesson overview, the student should complete the lesson practice and review sections.

The parent/teacher should check the student's work daily and provide immediate help and feedback. Students who struggle with the lesson practice should be encouraged to review the lesson overview or video for help.

Note: If printing at home, print pages at actual size.

LESSON DETAILS

Most lessons consist of a warm-up, video lesson, lesson overview, practice, and review.

WARM-UP: An activity that applies to the lesson topic or that reviews mental math skills.

VIDEO LESSON: Provides detailed teaching and interactive, guided practice of the lesson topic. Videos are about 12–15 minutes in length.

The Good and Beautiful Homeschool app can be used to access and watch the lesson videos. Use the QR code below to access app download information.

Alternatively, the videos can be accessed at goodandbeautiful.com/pre-algebra.

LESSON OVERVIEW: A concise written lesson on the topic.

PRACTICE: Practice that is dedicated to the lesson topic.

REVIEW: Daily review of topics from previous lessons.

A Reference Chart can be found at the back of each book.

Frequently Asked Questions

How many lessons should my student do each week?

There are 120 lessons in the course. If the student completes four lessons per week, he or she will complete the course in a standard school year with typical breaks for vacation or sickness.

How long do lessons take?

The average time to complete a lesson is 50–60 minutes. This includes time to watch the video and complete the course book sections.

What if my child does not do well on an assessment?

Each assessment question has a lesson number indicating where the content was first introduced. If your student misses an assessment question, he or she is encouraged to do one or more of the following:

- Reread the corresponding lesson overview.
- Rewatch the corresponding video.
- Complete the Extra Practice Worksheet for the corresponding lesson (available for purchase).
- Rework the problem given the answer. It can be helpful to know the answer when reworking a problem so mistakes can be found.

Do you include any specific doctrine?

No, the goal of our curriculum is not to teach doctrines specific to any particular Christian denomination but to teach general principles, such as honesty, hard work, and kindness. All Bible references in our curriculum are from the King James Version.

Does my student have to watch the videos?

The videos contain the bulk of the teaching and are highly recommended. However, if your student feels confident in the topic being taught, he or she can skip the video and read the lesson overview instead. A student who struggles with the lesson practice should be encouraged to go back and watch the video.

Some families prefer to have the parent/teacher facilitate the lesson using the lesson overview rather than have the child watch the video lesson independently.

Is Pre-Algebra completed independently by the child?

Yes, Pre-Algebra is designed for your student to complete independently, though at times the student may need parent/teacher assistance to understand a concept. The parent/teacher will need to check the student's work and should do so on a daily basis when possible, providing immediate feedback.

What if there isn't room to complete the work?

Pre-Algebra is designed to give students room to work in their course book. At times, additional paper may be needed. Students should always keep scratch paper on hand while completing the lessons. The *Simply Good and Beautiful Math Scratch Pad* is available for purchase.

Is a calculator used in Pre-Algebra? 

This course is designed to be completed with a scientific calculator on hand for specific problems. Problems that allow the use of a calculator are marked with the calculator icon shown above. Any brand of scientific calculator is acceptable. Please note that calculators may vary, and your student is encouraged to read the manual for the specific calculator to understand how it functions.

Lesson Topics

UNIT 1

UNIT 2

Unit 1 Overview

LESSONS 1–30

CONCEPTS COVERED

- Adding and subtracting decimals
- Adding and subtracting fractions
- Adding and subtracting in scientific notation
- Adding and subtracting integers
- Adding and subtracting roots
- Applications of properties of real numbers
- Combining like terms
- Commutative and associative properties
- Comparing and ordering fractions
- Converting decimals to fractions
- Converting fractions to decimals
- Distributive property
- Divisibility rules
- Estimating before performing operations
- Estimating cube roots
- Estimating square roots
- Evaluating expressions
- Evaluating expressions with roots
- Expanded notation
- Expanded notation with exponents
- Exponents
- Expressing unknowns in terms of the same variable
- Greatest common factors
- Identity and inverse properties
- Integer operations on a number line
- Inverse operations
- Least common multiples
- Multiplying and dividing in scientific notation
- Multiplying and dividing integers
- Multiplying and dividing signed fractions and decimals
- Multiplying roots
- Negative exponents
- Number sets
- Opposites and absolute value
- Order of operations
- Perfect squares and perfect cubes
- Place value
- Power of a product rule
- Power of a quotient rule
- Power rule for exponents
- Powers of 10
- Prime and composite numbers
- Prime factorization
- Principal square roots
- Product rule for exponents
- Quotient rule for exponents
- Radicals
- Rational and irrational numbers
- Reading and writing decimal numbers
- Reflexive property
- Relatively prime numbers
- Rounding to any place value
- Scientific notation
- Set notation
- Simplifying complex expressions
- Solving one-step equations
- Solving two-step equations
- Symmetric property
- Terms, constants, and coefficients
- Transitive property
- Upside down division
- Using inequalities to represent situations
- Venn diagrams
- Writing expressions and equations from word problems
- Zero product property

COURSE BOOK 2

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Unit 2 Overview

LESSONS 31–60

CONCEPTS COVERED

- Calculating slope using the formula
- Comparing linear functions
- Comparing linear representations
- Constant of proportionality
- Converse of Pythagorean theorem
- Converting between forms of a linear equation
- Converting between fractions, decimals, and percents
- Distance formula
- Domain and range
- Equations of horizontal and vertical lines
- Finding a fraction given a whole and part
- Finding a percent given a whole and part
- Finding a whole given a fraction and part
- Finding a whole given a percent and part
- Finding fractions of whole numbers
- Finding missing output values
- Finding missing sides on right triangles
- Finding percents of numbers
- Functions
- Graphing a relation from a table
- Graphing a relation from an equation
- Graphing from *x*- and *y*-intercepts
- Graphing horizontal and vertical lines
- Graphing linear equations
- Independent and dependent variables
- Input and output
- Interpreting graphs
- Linear and nonlinear equations
- Linear functions
- Midpoint formula
- Modeling real-world situations with equations
- Parallel lines
- Perpendicular lines
- Point-slope form
- Proportional relationships
- Pythagorean theorem
- Pythagorean triples
- Rate of change
- Representing real-world situations with linear equations
- Slope
- Slope-intercept form
- Slopes of zero and undefined slopes
- Solving equations with square or cube roots
- Solving equations with squared or cubed variables
- Solving equations with variables on both sides
- Solving formulas for a specific variable
- Solving multi-step equations
- Standard form
- The coordinate plane
- Types of relations
- Vertical line test
- Writing an equation from a graph
- Writing equations from tables
- Writing linear equations from a table
- Writing the equation of a line in slope-intercept form and point-slope form given multiple points
- *x*- and *y*-intercepts

COURSE BOOK 3

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Unit 3 Overview

LESSONS 61–90

CONCEPTS COVERED

- Angle relationships
- Arcs and sectors
- Area of circles
- Area of composite figures
- Area of polygons
- Classifying quadrilaterals
- Classifying triangles by angles and sides
- Complementary events
- Compound interest
- Compound probability
- Congruent geometric figures
- Constructing angle bisectors
- Constructing perpendicular bisectors
- Converting between systems of measurement
- Converting units of area
- Converting within systems of measurement
- Convex and concave polygons
- Cross sections
- Drawing triangles given three angle measures
- Drawing triangles given three side lengths
- Experimental probability
- Finding a dimension given volume
- Finding arc length
- Finding missing angle measures
- Finding missing angle measures in similar figures
- Finding missing angles in a circle
- Finding missing interior angles in polygons
- Finding missing side lengths in similar figures
- Finding missing side lengths in similar figures given perimeters and areas
- Finding the area of a sector
- Identifying solutions to inequalities
- Independent and dependent events
- Measuring and drawing angles
- Metric system
- Mutually exclusive events
- Naming angles
- Nets of cones and cylinders
- Nets of prisms and pyramids
- Operations with mixed measures
- Outcomes and sample space
- Parallel lines cut by a transversal
- Percent decrease
- Percent increase
- Points, lines, planes, line segments, rays
- Polygon angles and diagonals
- Properties of polyhedra
- Proportions
- Rates with proportions
- Ratios
- Regular and irregular polygons
- Scale factors
- Scale factors with area
- Scales and scale drawings
- Similar figures
- Simple interest
- Simple probability
- Solving one-step inequalities
- Solving proportions using cross products
- Solving two-step inequalities
- Supplementary and complementary angles
- Surface area of cones, cylinders, and spheres
- Surface area of polyhedra
- Theoretical probability
- Triangle angle sum theorem
- Triangle congruence tests
- Triangle inequality theorem
- Triangle similarity tests
- Types of angles
- Unit multipliers
- Unit rates
- US customary system
- Using area to find missing values
- Volume of composite solids
- Volume of incomplete solids
- Volume of prisms and cylinders
- Volume of pyramids, cones, and spheres

COURSE BOOK 4

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Unit 4 Overview

LESSONS 91–120

CONCEPTS COVERED

- Adding and subtracting polynomials
- Algebraic rules for reflections
- Algebraic rules for translations
- Analyzing data containing outliers
- Analyzing methods of solving systems
- Bias in survey questions
- Bias in survey samples
- Box plots
- Calculating equations for lines of best fit
- Clusters and outliers in data
- Comparing transformations
- Dilations on a coordinate plane
- Dividing binomials by monomials
- Dividing monomials
- Factoring the GCF from binomials and trinomials
- Finding missing data values using mean
- First, second, and third quartiles in data
- Frequency tables
- Graphing linear inequalities
- Greatest common factor of monomials
- Histograms
- Identifying solutions to systems
- Interpreting lines of best fit
- Interquartile ranges
- Joint and marginal frequencies
- Least common multiple of monomials
- Line plots
- Linear equations with infinite solutions
- Linear equations with no solutions
- Linear equations with one solution
- Lines of symmetry
- Measures of central tendency
- Multiplying binomials
- Multiplying monomials
- Multiplying monomials and binomials
- Order of rotational symmetry
- Performing multiple transformations
- Qualitative and quantitative data
- Ranges in data
- Reflectional symmetry
- Reflections on a coordinate plane
- Relative frequencies
- Rotations on the coordinate plane
- Scale factor of dilation
- Scatter plots
- Simplifying polynomials
- Skewed data
- Solving and graphing multi-step inequalities
- Solving systems by elimination
- Solving systems by graphing
- Solving systems by substitution
- Stem-and-leaf plots
- Surveys, samples, and sample size
- Systems of linear equations
- Translations on a coordinate plane
- Two-way tables
- Types of correlation
- Types of random samples (simple, stratified, systematic)
- Using solutions in other equations and expressions
- Writing inequalities from word problems