

# Saxon Homeschool Math Scope and Sequence

## **Saxon Philosophy**

The unique structure of *Saxon Math* promotes student success through the proven educational practices of *incremental development* and *continual review*. Consider how most other mathematics programs are structured: content is organized into topical chapters, and topics are developed rapidly to prepare students for end-of-chapter tests. Once a chapter is completed, the topic changes, and often practice on the topic ends. Many students struggle to absorb the large blocks of content and may forget what they have learned without continual practice. Chapter organization might be good for reference, but it is not the best organization for learning. Incremental development and continual review are structural designs that improve student learning.

### **Incremental Development**

With incremental development, topics are developed in small steps spread over time. One facet of a concept is taught and practiced before the next facet is introduced. Both facets are then practiced together until it is time for the third to be introduced. Instead of being organized into chapters that rapidly develop a topic and then move on to the next strand, *Saxon Math* is organized into a series of lessons that gradually develop concepts. This approach gives students the time to develop a deeper understanding of concepts and how to apply them.

### **Continual Review**

Through continual review, previously-presented concepts are practiced frequently and extensively throughout the year. Saxon's cumulative daily practice strengthens students' grasp of concepts and improves their long-term retention of concepts.

John Saxon often said, "Mathematics is not difficult. Mathematics is just different, and time is the elixir that turns things different into things familiar." This program provides the time and experiences students need to learn the skills and concepts necessary for success in mathematics, whether those skills are applied in quantitative disciplines or in the mathematical demands of everyday life.

## **The Saxon Story**

*Saxon Math* began when John Saxon was teaching algebra at a junior college in Oklahoma and discovered that his students were neither comprehending nor retaining the algebra they were being taught. What started as writing out some problems for his class became a highly successful algebra program. In 1979, *Saxon Algebra* was published in two texts for the junior college level. He continued to write and adapt his work into a text for high school algebra students and enlisted several high school teachers to try his manuscript with their students. They too were successful using the program.

In October 1980, his high school text *Algebra 1: An Incremental Approach* became a reality. In 1981, Saxon recruited 20 teachers to try his method of teaching. Approximately 1,400 students were involved in the test. At the end of the school term, Saxon students were able to solve 2.6 problems for every one problem solved by students in regular classes.

By 1986, four books were available from Saxon Publishers: *Algebra 1*, *Algebra 2*, *Algebra 1/2*, and *Advanced Mathematics*. By 1993, the company had published 13 books and programs for students in kindergarten through high school, including a calculus and physics text. In 1996, *Phonics K-2* was introduced throughout the country, followed in 1999 by *Phonics Intervention*, a program designed especially for older non-readers.

## **Program Description**

### ***Saxon Math K through Math 3***

#### **Program Components**

The *Math K–Math 3* kits consist of the following components: Homeschool Teacher’s Manual, Student’s Meeting Book, Student Workbooks (Part One and Part Two), and Fact Cards. (The *Math K* kit does not contain the workbooks or Fact Cards.)

#### **Program Overview**

Each lesson in grades 1, 2, and 3 contains five components: The Meeting, The Lesson, Written Practice, Fact Practice, and Assessments. In *Math K*, each lesson includes The Meeting and The Lesson.

#### **The Meeting**

During The Meeting, your child will answer questions about the calendar and practice counting, patterning, telling time, and estimation. Meeting activities require the Student’s Meeting Book, as well as the scripted instructions and questions in the Teacher’s Manual.

#### **The Lesson**

Every day a new increment or skill is taught during The Lesson. Lesson activities use manipulatives, the Teacher’s Manual, and occasionally masters from the Student Workbook. During The Lesson, encourage your child to discuss observations and discoveries and to ask questions. The “doing” part of this program is very important and leads to concept understanding.

#### **Written Practice**

Each written practice sheet in the Student Workbooks includes a short practice of the new objective and a review of previous concepts. Your child completes Side A with your assistance during the lesson. Side B, which mirrors the problems on Side A, is completed independently later in the day. This time delay between practice improves retention.

### Fact Practice

Class practice, using Fact Cards and Fact Sheets from the Student Workbooks, provides an opportunity for your child to practice the number facts that have been introduced in previous lessons.

### Assessments

Oral and written assessments are given to your child on skills practiced for at least five lessons. In *Math 1–Math 3*, a written assessment occurs every five lessons and an oral assessment occurs every ten lessons. In *Math K*, all assessments are oral and occur every six lessons.

## ***Saxon Math 5/4 through Math 8/7***

### **Program Components**

*Math 5/4–Math 8/7* kits consist of three components: textbook, Tests and Worksheets, and Solutions Manual.

The textbook for each grade level is divided into 120 lessons and 12 investigations. The textbook also contains appendix topics that present additional instruction, supplemental practice problems for remediation, an illustrated glossary, and a comprehensive index.

The Tests and Worksheets booklet provides all the worksheets and tests needed by one student to complete the program. It also contains recording forms for the student to show his or her work and for parents to track student progress.

The Solutions Manual contains step-by-step solutions to all textbook and test exercises.

### **Program Overview**

*Math 5/4–Math 8/7* texts contain three types of math “sessions”: lessons, investigations, and tests. Concepts are introduced and reviewed in a carefully-planned sequence. It is therefore crucial to complete all lessons and investigations in the given order. By completing one lesson, investigation, or test per day, the entire program can be finished in 31 or 32 weeks. However, faster or slower paces may be appropriate, depending on students’ individual learning styles.

### Lessons

Each lesson is divided into four sections: Warm-Up, New Concept(s), Lesson Practice, and Mixed Practice.

The Warm-Up (10–15 minutes) promotes mental math and problem-solving skills and sets the tone for the day’s instruction. It consists of Facts Practice, Mental Math, and Problem Solving.

In the New Concept(s) section (5-15 minutes for most lessons) you will find the new instructional increment, as well as example problems to work through. Important vocabulary terms are highlighted in color, and each of these terms is defined in the textbook’s glossary.

The Lesson Practice (5–10 minutes) provides practice on the new concept.

The Mixed Practice (20–40 minutes) section contains 25 to 30 practice problems that prepare students for upcoming lessons, allow them to work with several strands of mathematics concurrently, and provide them with the distributed practice that promotes long-term retention of concepts. If your student encounters difficulty with Mixed Practice problems, have him or her refer to the Lesson Reference Numbers that appear in the parentheses below each problem number. Lesson Reference Numbers indicate which lessons cover the concepts relevant to the problems they label.

### Investigations

Following every tenth lesson is an investigation. Investigations are in-depth treatments of concepts that often involve activities. Topics covered in investigations include data gathering, presentation, and analysis; geometry; probability; fractions; and graphing.

### Tests

The problems on the *Math 5/4–Math 8/7* cumulative tests are similar to those in the textbook, and the tests are scheduled so that students have about five days to practice concepts before being assessed on them. Each test is 20 questions in length, and students can find help by referring to the Lesson Reference Numbers, just as in the Mixed Practice.

## ***Saxon Algebra 1/2 through Calculus***

### **Program Components**

*Algebra 1/2–Calculus* kits consist of a textbook and a homeschool packet, which includes test forms, test solutions, and answers for textbook practice problems and problem sets. The Solutions Manual, with step-by-step solutions to textbook problems, may be purchased separately.

### **Program Overview**

After *Math 8/7*, students transition to a hardcover textbook. These books take the same approach to learning math as the previous books but with more advanced topics, beginning with a mix of algebra and geometry and finishing with calculus.

### Lessons

The concepts introduced in each lesson are integrated just as they are throughout the Saxon curriculum. Algebra and geometry, and later calculus and trigonometry, concepts are interwoven throughout the text. Increments are presented with ample instruction and practice, and problem sets, which conclude the lesson, include problems from previous lessons. Problem sets generally include 30 practice problems (except in *Calculus*, with between 20 and 25 problems), and students can refer to the Lesson Reference Numbers in parentheses below each problem number to target previous lessons for review.

### Tests

Tests are administered after every four lessons, and each test is 20 questions in length (except *Calculus* tests, which contain between 13 and 17 questions). The problems on *Algebra 1/2 – Calculus* cumulative tests are similar to those in the textbook, and students can find help by referring to the Lesson Reference Numbers, just as in the problem sets.

### Solutions Manual

Though students can find answers to all problem sets in the Homeschool Packet, they may need the additional support available in the Solutions Manual. The Solutions Manual contains step-by-step solutions to each problem in the book. For sets of problems with similar solutions, early solutions contain every step and later solutions omit obvious steps.

## **Program Sequence**

As a complete K–12 program, Saxon has been designed for students to complete one level each year. Whether they are starting at *Math K* or transferring from another program, students should not skip levels within the Saxon program, just as they should not skip lessons within a textbook. The following is a recommended sequence for completing the Saxon program, assuming students have attained the recommended 80% mastery to move to the next level.

*Math K*

*Math 1*

*Math 2*

*Math 3*

*Math 5/4*

*Math 6/5*

*Math 7/6*

*Math 8/7*

*Algebra 1*

*Algebra 2*

*Advanced Mathematics*

*Calculus*

Many parents wonder where their child will need to be in the Saxon program in order to take a college entrance exam and/or to prepare for college. While completion of *Algebra 2* will teach students the concepts they will need to score well on college entrance exams, we strongly recommend *Advanced Mathematics* for both entrance exams and college preparation. After completing *Algebra 2*, students should be proficient in the algebraic concepts included in a college entrance exam. They will also have the equivalent of one semester of informal geometry. Informal geometry does not stress formal, two-column proofs, but it contains the geometric concepts and logical reasoning (taught primarily through informal geometric proofs) that students will need for scoring well on a college entrance exam. *Advanced Mathematics* includes both pre-calculus and trigonometry, which completes the geometry requirement and prepares students for calculus and other high-level math and science courses. *Advanced Mathematics* will also help them with many of the more advanced problems on college entrance exams. Completing *Advanced Mathematics* will give your child the math background he or she needs to succeed in college, whether in a math-related course of study or another pursuit.