

HOW TO USE

Welcome to *Algebra 1*. I believe you will have a positive experience with the unique Math·U·See approach to teaching math. These first few pages explain the essence of this methodology which has worked for thousands of students and teachers. I hope you will take five minutes and read through these steps carefully.

Since math builds upon previously studied concepts, the first step is to have your student take the readiness test found in the beginning of the student text. (The solutions to this test are at with the other solutions at the back of this book.) If the test reveals gaps in the student's understanding, please contact your trained Math·U·See representative and find out how to rebuild your student's math foundation. I am assuming a thorough grasp of the four basic operations (addition, subtraction, multiplication, and division), along with a mastery of fractions, decimals, percents, and pre-algebra skills.

If you are using the program properly and still need additional help, you may contact your authorized representative or visit Math·U·See online at MathUSee.com/support. —**Steve Demme**

The Goal of Math-U-See

The underlying assumption or premise of Math·U·See is that the reason we study math is to apply math in everyday situations. Our goal is to help produce confident problem solvers who enjoy the study of math. These are students who learn their math facts, rules, and formulas *and* are able to use this knowledge in solving word problems and real-life applications. Therefore, the study of math is much more than simply committing to memory a list of facts. It includes memorization, but it also encompasses learning underlying concepts that are critical to problem solving.

More than Memorization

Many people confuse memorization with understanding. Once while I was teaching seven junior high students, I asked how many pieces they would each receive if there were fourteen pieces. The students' response was, "What do we do: add, subtract, multiply, or divide?" Knowing *how* to divide is important; understanding *when* to divide is equally important.

THE SUGGESTED 4-STEP MATH-U-SEE APPROACH

In order to train students to be confident problem solvers, here are the four steps that I suggest you use to get the most from the Math·U·See curriculum:

Step 1. Preparation for the lesson.

Step 2. Presentation of the new topic.

Step 3. Practice for mastery.

Step 4. Progression after mastery.

Step 1. Preparation for the lesson.

 Watch the DVD to learn the concept and see how to demonstrate this concept with the manipulatives when applicable. Study the written explanations and examples in the instruction manual. Many students watch the DVD along with their instructor. Older students in the secondary level who have taken responsibility to study math themselves will do well to watch the DVD and read through the instruction manual.

Step 2. Presentation of the new topic.

 Now that you have studied the new topic, choose problems from the first lesson practice page to present the new concept to your students.

- a. Build:** Demonstrate how to use the manipulatives to solve the problem, if applicable. As students mature, they learn to think abstractly. However, we will still be using the manipulatives for some concepts in *Algebra 1*.
- b. Write:** Record the step-by-step solutions on paper as you work them through with the manipulatives.
- c. Say:** Explain the “why” and “what” of math as you build and write.

Do as many problems as you feel are necessary until the student is comfortable with the new material. One of the joys of teaching is hearing a student say, “*Now I get it!*” or “*Now I see it!*”

Step 3. Practice for mastery.

 Using the examples and the lesson practice problems from the student text, have the students practice the new concept until they understand it. It is one thing for students to watch someone else do a problem; it is quite another to do the same problem themselves. Do enough examples together so that they can do them without assistance.

Do as many of the lesson practice pages as necessary (not all pages may be needed) until the student remembers the new material and gains understanding. Give special attention to word problems, which are designed to apply the concept being taught in the lesson. If your student needs more practice, look for the additional lesson practice pages under "Algebra 1 Updates" at MathUSee.com/support/downloads.

Step 4. Progression after mastery.

 Once mastery of the new concept is demonstrated, proceed into the systematic review pages for that lesson. Mastery can be demonstrated by having each student teach the new material back to you. The goal is not to fill in worksheets, but to be able to teach back what has been learned.

The systematic review worksheets review the new material as well as provide practice of the math concepts previously studied. Remediate missed problems as they arise to ensure continued mastery.

After the last systematic review page in each lesson, you will find an "honors" lesson. These are optional, but highly recommended for students who will be taking advanced math or science courses. These challenging problems are a good way for all students to hone their problem-solving skills.

Proceed to the lesson tests. These were designed to be an assessment tool to help determine mastery, but they may also be used as extra worksheets. Your students will be ready for the next lesson only after demonstrating mastery of the new concept and continued mastery of concepts found in the systematic review worksheets.

Confucius is reputed to have said, "Tell me, I forget; show me, I understand; let me do it, I will remember." To which we add, **"Let me teach it and I will have achieved mastery!"**

Length of a Lesson

So how long should a lesson take? This will vary from student to student and from topic to topic. You may spend a day on a new topic, or you may spend several days. There are so many factors that influence this process that it is impossible to predict the length of time from one lesson to another. I have spent three days

on a lesson, and I have also invested three weeks in a lesson. This occurred in the same book with the same student. If you move from lesson to lesson too quickly without the student demonstrating mastery, he will become overwhelmed and discouraged as he is exposed to more new material without having learned the previous topics. But if you move too slowly, your student may become bored and lose interest in math. I believe that as you regularly spend time working along with your student, you will sense when is the right time to take the lesson test and progress through the book.

By following the four steps outlined above, you will have a much greater opportunity to succeed. Math must be taught sequentially, as it builds line upon line and precept upon precept on previously learned material. I hope you will try this methodology and move at your student's pace. As you do, I think you will be helping to create a confident problem solver who enjoys the study of math.