HOW TO USE MATH·U·SEE

Welcome to *Algebra 2*. 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.

If you are using the program properly and still need additional help, you may call 888-854-6284 or visit us 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.

This course assumes a knowledge of Algebra 1. The first few lessons include some review. If you need more review, study the "Basic Algebra Review." It is found before lesson 1 in the instruction manual, and near the end of the student text. Watch the DVD to learn the concept. Study the written explanations and examples in the instruction manual. Many students watch the DVD along with their instructor. 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 instruction manual to present the new concept to your students.

a. Write: Record the step-by-step solutions on paper as you work them.
b. Say: Explain the *"why"* and *"what"* of the math as you work the problems.

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 in the instruction manual 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 students understand the new material. Give special attention to the word problems, which are designed to apply the concept being taught in the lesson. Additional lesson practice pages are available for download at MathUSee.com/downloads.php if your student needs more practice.

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.

Note for Chemistry Students

Some students may be taking *Algebra 2* and chemistry at the same time. If that is the case, you may want to consider changing the order of some of the lessons.

Begin with lessons 1, 2, and 3 as usual. They review and teach algebra skills you will need in chemistry. Then move ahead and do lessons 14, 15, and 16 for topics applicable to chemistry. The concepts in these lessons use basic skills, so there should be no difficulty in using this sequence. Then move to lesson 28 to prepare for chemical mixture problems in your chemistry course. This lesson requires solving simple systems of equations as was taught in *Algebra 1*.

If you choose this order, simply skip any review questions that cover concepts you passed over, and do them when you go back to the normal sequence.