VideoText *Interactive*

HomeSchool
and
Independent Study
Sampler

Print Materials
for
"Algebra: A Complete Course"

Program Overview

(2 pages)

Program Overview

The VideoText *Interactive* Algebra program addresses two of the most important aspects of mathematics instruction. First, the **inquiry-based video format contributes to the engaging of students more personally in the concept development process.** Through the frequent use of the pause button, you, as the instructor, can virtually require interaction and dialogue on the part of your student. As well, students who work well on their own, can "simulate" having an instructor present, by pausing the lesson every time a question is asked, and trying to answer it correctly before continuing. Second, **each incremental concept is explored in detail**, **using no shortcuts, tricks, rules, or formulas, and no step in the process is ignored.** As such, the logic, and the continuity of the development assure students that they understand completely. Subsequently, learning is more efficient, and all of the required concepts (topics) of the subject can be covered with mastery. Of course, the benefits of these efforts can be seen even more clearly in a description of a typical session as follows:

After a brief 2 or 3 sentence introduction of the concept to be considered, usually by examining the description and the objective given at the beginning of the video lesson, you and your student can begin. **You should pause the lesson frequently**, usually every 15-20 seconds, (or more often if appropriate), to engage your student in discussion. This means that for a 5-10 minute VideoText lesson, it may take 15-20 minutes to finish developing the concept. **Dialogue is a cornerstone**. In addition, during this time, **your student should probably not be allowed to take notes**. He or she must not have their attention divided, or they risk missing important links. Neither should you be dividing your attention by looking at notes or writing on a note pad or an overhead projector. **Everyone is concentrating on concept development and understanding.** Please understand that a student who is accustomed to working alone, or can be motivated to study independently, has, with the VideoText, a powerful resource to explore and master mathematical concepts, by simulating the dialogue normally encountered with a "live" instructor. And, because of the extensive detail of the explanations, along with the computer-generated graphics and animation, students are never shortchanged when it comes to the insight necessary to fully comprehend.

Once the concept is developed, and the VideoText lesson is completed, you can then **employ the course notes to review, reinforce, or check on your student's comprehension.** These course notes are exact replications of the content that was viewed in the VideoText lesson, illustrating the same terms, problems, numbers, and logical sequences. In fact, at this time, if your student needs a little more help, he or she can use these course notes while viewing the lesson again, using them as a guide through the reexamination of the concept. **The key here is that students concentrate on understanding first, and take care of documentation later**.

Please understand that it is not the intent of the program to let the VideoText lesson completely take the place of instruction. Actually, **the video should never tell your student anything that hasn't been considered or discussed (while the lesson is paused), and it should never answer questions that have not already been resolved.** As such, it becomes a "new breed" of overhead projector whereby you, as the teacher, or

your student working alone, can "write" on this overhead simply by pressing the "play" button. This is a critical point to be understood and should serve to help you examine all of the materials and strategies from the proper perspective.

Next, your student can begin to do some work independently, either by your personal introduction of additional examples from the WorkText, or by the student immediately going to the WorkText on his or her own. **The primary feature of the WorkText**, beside providing problem banks with which students can work on mastery, is that **objectives are restated, important terms are reviewed, and additional examples are considered**, in noticeable detail, **taking students, once again, through the logic of the concept development process**. The premise here is simple. When students work with an instructor, whether doing exercises on their own, or working through them with other students, they are concentrating more on "how to do" the problems. Then, when they leave the instructor, they simply don't take the discussion of the concept with them. The goal of the program is to provide a resource which will **help students "relive" the concept development** on their own, whether for review or for additional help. That is the focus of the Student WorkText.

Having completed the exercises for the lesson being considered, your **student is now ready to use the detail in the Solutions Manual to check work and engage in error analysis**. Again, it is essential to a student's understanding that he or she find mistakes, correct them, and be required to give some explanation, either verbal or in writing, to you as the instructor. In fact, at this stage, you might even **consider grading your student only on the completion of the work**, not on its accuracy. Remember, this is the first time the student has tried to demonstrate understanding of a concept, and he or she may still need some fine-tuning. So, because this is part of the initial learning process, **the focus should be on a careful analysis of the logic behind the work, not just the answers.**

Finally, **it is time to assess your student's mastery** of the concept behind the work. Just **be sure you are not testing on the same day the exercises were completed.** Short-term memory can trick you into thinking that you "have it", when, in fact, you are just remembering what you did moments before. A more accurate evaluation can be made on the next day, before moving on to the next lesson. Further, the quizzes and tests in the program often utilize **open-response questions which will require your student to state, in writing, his or her understanding of the concept.** This often reveals much more about a student's understanding than just checking to see if an answer on a test is correct. Remember too, that there are **two versions of every quiz and test**, allowing you to retest, if necessary, in order to make sure that your student has mastered the concept.

Of course, just as with the WorkText, there are detailed **solutions for all of the quiz and test problems, in the Instructor's Guide.** Again, your student should be required to analyze problems that were missed, and explain why the problem should have been done differently. It is simply a fact that one of the most powerful and effective teaching tools you can employ, is to **ask your students to "articulate" to you what their thinking was**, as they worked toward a given answer.

As you can see, the highly interactive quality of this program, at a personal level, affords students a much greater opportunity than usual to grow mathematically and develop confidence in their ability. That can have a tremendous impact on a student's future pursuits, especially in an age where applications of mathematics are so important.