

# **Music Technology for All Students: via Music Theory Software!**

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The statement “music is for all” is not a far fetched statement, especially in present-day education where there is such a diversity of students and personal needs for growth and development beyond music performance skills. For all students, average, gifted and talented and remedial all have needs to have positive experiences with music. Whether you are a band director, string teacher, vocal teacher or a general music teacher, students from a vast background will come to you with their hearts and eyes open for your instruction. With national teaching standards, music teachers have a serious responsibility to reach out and “touch” students of all backgrounds and expertise with music instruction. Unfortunately, not all music students can aspire to high music performance achievement levels. Instead, it is more realistic to develop our students into consumers of music for life. Music technology is a remarkably quick and easy way when done correctly to guide students by giving them a myriad of options in experiencing music first-hand without necessarily achieving high standards of music expertise. Music theory software is a plum way to get your students learning about how one reads, thinks and creates music. Regardless of whether one is average, remedial and/or gifted and talented, you will be pleased to learn that music theory instruction can make a big difference on how one perceives music and how it can be used at all levels..

## **Primer Level Music Theory Instruction**

At the elementary and middle school levels and many times at the high school level,

students may have remedial needs learn note reading, key signatures, clefs, rhythms, simple ear training focusing in call and response techniques and more prerequisites to music reading. Frequently, specialty music theory (specific topical) programs that do not attempt to be comprehensive in their instructional scope mainly focus in on drill and practice instruction with all of the prerequisite instruction being taught first by you! What can make a drill and practice presentation effective in these specialty programs is that one doesn't usually need to change monitor screens when doing the program and it is possible for students to operate the computer with just one window screen. Theoretically, students could be rotated in 10 minute blocks within a music ensemble rehearsal, thus making it possible to have all members of an performance class to receive theory instruction every two weeks with classes that meet daily if you two or three computers in the rehearsal room. Even with one computer in the classroom, much can be accomplished when you consider beyond class periods with additional times from lunch time, study periods, and before and after school as being available for student use. One strong recommendation is to give your students and pre-test to better understand what music theory concepts they understand and which ones needs instruction on. Then provide the software and your students will be able to practice what concepts you have already taught them such as naming notes, key signatures, etc.).

The beauty of music theory instruction is that remedial, average and gifted and talent students will all want some "hands-on experiences with your music theory programs. With only one monitor screen to contend with, it is possible to smoothly rotate students up to 5 students per class period if it is 50 minutes in length because the transition from student to student within a given class period can be very minimal. I suggest you have a technology oriented student

supervising the computers so you can teach your class as normal. Please note that students even at the high school level can benefit immeasurably with music theory specialty programs even though they were primarily designed for younger students. High school students can certainly benefit from such get V.I.P. instruction addressing deficiencies with music reading such as names of notes, clefs, accidentals, key signatures, scales/chords, etc. You will find a wealth of software that can address these immediate needs.

Perhaps the best thing about music theory software is that the students receive immediate feedback concerning students input to questions they just answered. The bottom line is that immediate feedback provides a positive environment for students getting help in such a manner. By focusing in on one particular music theory concept at a time, it is feasible for students to concentrate successfully even if their music theory and intellectual abilities are restricted. Two publishers that offer a lot of different music specialty programs/topics are Electronic Courseware Systems and Maestro Music. Also, there are many general music software programs that are not reviewed in this article but do provide prerequisite attention to music theory concepts such as MIDI-saurus in eight volumes formerly available from Musicware and now from Town4Kids.

Some theory programs offer optional MIDI input besides that from typewrite keyboards. For younger students, this can be a distraction and for older students MIDI input can be very productive. Remember you always have choices of using MIDI or not in a music theory program. For those who do definitely want MIDI options, be sure to check with the manufacturer's web sites to be sure that MIDI options are offered. In this article, check the minimum requirements at the beginning of every product review for MIDI options.

## **Beyond Beginning Level Music Theory Instruction**

For music programs that have done a lot of music theory instruction in the classroom, comprehensive music theory programs are a must because they offer a lot more instruction getting into more technical theory applications dealing with scales, chords, part-writing, more advanced ear training and much more. These comprehensive music theory programs can keep students occupied with instruction for far longer periods of time. Some of these products even allow you to program your own instructional units. Excellent examples of programming units of instruction that can be done in *Musition 2* and *Auralia* by Rising Software, *Musica Analytica* by ER Technologies and *Musica Practicum* by Ars Nova. Most of the comprehensive music programs offer student record keeping in which student's work can be recorded and even printed out for teacher assessment. Ear training instruction can be rather motivating when you are able to generate as much aural drill and practice material as you need. Some of the comprehensive music theory programs generally offer a considerable amount of tutorial instruction in addition to its drill and practice mode. The tutorial mode can be a significant advantage as students can be taught a considerable amount of information without the teacher directly supervising. However, it is strongly recommended that the teacher initiate theory instruction first before expecting a tutorial software presentation to be effective.

When costing the cost of specialty programs (\$39.95 to \$149.95 each) to comprehensive music theory programs (up to \$165), consider the number of students who will be using each software application and the number of hours of potential instruction. With many hours of instruction and the more students using it, makes a comprehensive music theory program a best buy regardless of the product cost. Student record keeping is mandatory since students need to

be accountable for time spent on a computer. Some programs keep just the highest score for each level or test while others can keep a myriad of records for each students as well as print out the records.. Some students will have the ability to have 50 to 100 students in the software while others have a capacity far beyond that. There are even networking versions by HarmonicVision that can record detailed grades for every student in your school and/or in the entire school district. And lastly, some products even have the ability to be networked in a computer lab so that extensive records is possible for every log-in session. HarmonicVision with their *Music Ace* series is available with at least 5 or 6 different networking packages which makes it very economical when considering the total number of students being serviced since you can purchase the specific networking version that you need for school and school-district use.

### **Specialty Topic Music Theory Software**

Electronic Courseware Systems and Maestro Music provides many quality primer level and specialty topical software products to jump start your students needing some music theory proficiency expertise. Each program listed has a particular emphasis which makes it easy to identify which products will meet the needs of your students. Their minimum hardware requirements for Electronic Courseware (ESC) are as follows except if noted in each product review. Windows: Windows 3.1/195/98, 4 MB RAM, VGA/SVGA display, sound card, Windows compatible MIDI interface and optional MIDI keyboard if listed. Macintosh: 2 MB RAM, System 6.0.7 to System 9.x, and optional MIDI compatible interface and keyboard.. PC DOS 640K RAM, 5.25" or 3.5" floppy diskette, CGA display and DOS 3.2 or higher. Apple II+, IIe, IIGS or IIc. Networking version available for all products. Most products have recording keeping available. To learn more about ESC products, please check out their web site at:

<http://www.ecsmedia.com>.

- *Aural Skills Trainer* by ESC (\$99.95). Covers ear training skills for identifying intervals, basic chords and seventh chords
- *Clef Notes* by ESC (\$39.95). Networking version available. Great for learning the notes on various clefs, including treble, alto, tenor and bass clefs. Full record keeping available.
- *Elements of Music* by ESC (\$79.95). Drill and practice that can be timed or untimed dealing with naming both major and minor key signatures and naming notes from a musical staff or from a keyboard. I like the simplicity of this product for classroom use along with the progress reports available for each learner. Apple and PC DOS versions do not have the option of MIDI while the Windows and Mac version do.
- *Functional Harmony* by ESC (\$149.95). Not a primer level product. It facilitates harmonic analysis. Section 1 allows the user to practice analyzing basic chords in major or minor keys in both root and inversions. Section 2 presents diatonic seventh chords. Section 3 presents secondary dominants. Section 4 completes the set with practice on borrowed and altered chords. The MIDI option is particularly good for aural analysis.
- *Harmonic Progressions* by ESC (\$200). An in-depth program for improving skills in functional harmonic analysis. Content covers root position chords, inverted chords, dominant chords, embellishing 6 chords, diatonic 7ths and cadence patterns. A great workout!
- *Keyboard Chords* by ESC (\$79.95). Contains a tutorial on major, minor, diminished and augmented chords plus chord spelling drill, keyboard drill and a test. A great way to

incorporate chords with keyboard interaction.

- *Keyboard Extended Jazz Harmonies* by ESC (\$79.95). Sequel to *Keyboard Jazz Harmonies* designed to teach students to identify and build 9<sup>th</sup>, 11<sup>th</sup> and 13<sup>th</sup> chords.
- *Keyboard Intervals* by ESC (\$79.95). Designed to help music students learn to play major, minor, diminished and augmented intervals. Must already know how to read music to use the program.
- *Keyboard Jazz Harmonies* by ESC (\$79.95). Great introduction to jazz chord studies covering chord symbols, 7<sup>th</sup> chord recognition both aurally and visually, and chord spelling. Includes both a tutorial, four drills, four quizzes and a final quiz.
- *Music Flash Cards* by ESC (\$99.95). Great way to drill your students in a drill and practice format. Section covers names of notes, rhythm values and equivalents. Section 2 covers major scales, minor scales, modal scales and key signatures. Section 3 completes the set with lessons on intervals and basic chords.
- *Musical Stairs* by ESC (\$39.95). An aural drill and practice game covering intervallic relationship for young students in treble and bass clef.

Maestro Music also offers a lot of special topics of music theory software for Windows, Macintosh and Apple II computers without MIDI options. For PC and Macintosh computers, their most popular special topic software applications include:

- *Ear Training* by Maestro Music (\$?). It works with interval recognition, both visually and aurally and includes a solfegee section.
- *Fortune Cookie* by Maestro Music (\$?). It introduces the fundamental concepts of up and down, high and low, loud and soft and fast and slow.

- *Fortune 2* by Maestro Music (\$?). It provides a continuation of development to into “more advanced” musical concepts that include the concepts of staves, note names, note values and intervals.
- *Note Name Drills* by Maestro Music (\$?). It provides effective drill and practice in naming notes in treble, bass, alto and tenor clef and also includes an option of naming notes by solfegee designations.
- *Scales & Key Signatures* by Maestro Music (\$?). It provides review of diatonic scales for more advanced students with the ability for the user to designate which sharps and flats can be available for each drill.

For more detailed information, please go to Maestro Music’s web site:

<http://www.maestroscope.com>. Believe it or not, Maestro Music even has more appropriate specialty music theory programs for the Apple II platform than the ones reviewed in this article for the PC and Macintosh platforms.

### **Multi-Purpose Music Theory Software**

As mentioned previous, the multi-purpose music theory software products can provide in-depth instruction for long periods of time which can meet the needs of your students. Their applications can be quite interesting featuring a lot of information with a slick delivery system.

- *Practica Musica 4* by Ars Nova (PC and Macintosh), \$125 for teach edition and \$24 for student edition (also available in various academic packages includes site license).

Windows prerequisites: Windows 95/98, Pentium CPU, sound card, 32 MB RAM, 16

MB hard disk free space and CD-ROM. Macintosh prerequisites: System 7.6 to OS9,

QuickTime 3 or 4, 680040 or PowerPC, 32 MB RAM, 16 MB hard disk free space, CD-

ROM and MIDI options. A remarkable music theory/ear training tutor with a wide variety of fully customizable learning activities from beginning students to college level and beyond by including rhythm tapping in 1 or 2 parts, chord progressions, polyphonic dictation, writing tools, and much more. The polyphonic capabilities are amazing. For example, try 2-part rhythm tapping or 4-part dictation. *Practica Music 4* works with or without MIDI. There is now a textbook included with the software that is coordinated with the program with 37 pages of tear-out exercises and a section of class music for those using the program in school. There are currently 63 different activities of which 27 of them specifically designed to accompany the textbook. There is a new writing tools which lets students create their own music on single or multiple staves in order to hear it, save it and print it.

The variety of music theory and ear training learning activities are incredible. Consider the following options: pitch matching, pitch reading, rhythm matching, rhythm reading, 2-part rhythm reading, pitch & rhythm reading, interval playing, interval spelling, interval ear training, scales and key signatures, chord playing, chord spelling, chord ear training, chord progression ear training, pitch dictation, rhythm dictation, pitch & rhythm dictation, melody writing, 2-part pitch dictation, 4-part pitch dictation, hearing altered chords, progressive dictation, visual chords, visual intervals, active listening, real transposition, tonal transposition, you-choose scales, you-choose intervals, you-choose chords, composition tools, 2-part writing tools, 4-part writing tools, rounds, 4-part writing tools,, shaping melody, reading syncopation, reading triplets, speed intervals, and playable textbook examples. There are even some additional beginning activities: the

keyboard, whole-step and half-step, octaves, reading treble clef, reading bass clef, reading accidentals, placing barlines and recognizing primary chords in progressions. There are also many additional activities that can be downloaded from Ars Nova's web site:

<http://www.ars-nova.com>.

- *Music Ace I, 2 and 3* by HarmonicVision (Windows and Macintosh), \$49.95 each (many customized networking versions available). system requirements are: Windows 3.1: 386 CPU or faster with 4 MB RAM, 640x480 256-color Super VGA monitor, 12 MB free hard disk space, 3.5" disk drive and a MPC compatible sound card or General MIDI required but MIDI keyboard is optional. Additional requirements for Windows 95 or Windows 98: 486 DX-33 MHz or better 8 MB of RAM.. The Macintosh 68030 needs 25 MHz or higher 5 MB RAM, 256-color VGA monitor, 11 MB free hard disk space System 7.0.1 or better, a 3.5" disk drive and MIDI options. A hybrid CD-ROM is available for both Windows and Macintosh platforms. *Music Ace* will work on 386 computers with Windows 3.1 and up. Even an older DOS version is available. Contact Harmonic Vision for availability.

If ever there was a software program that grabs your attention with animated graphic instruction, it is *Music Ace* and *Music Ace II*. *Music Ace III* soon to be released. For beginning theory, instruction at the elementary and middle school levels, *Music Ace* is a one-of-a-kind software product. Maestro Max and his choir of Singing Notes will keep your students on task. It offers 24 comprehensive lessons covering fundamental music skills and concepts dealing with staff and keyboard relationships, note reading, sharps, flats, and key signatures, major scales and octaves, pitch identification, listening skills,

keyboard basics and treble, bass and grand staff. An interactive game follows each lesson, designed to reinforce new material and sharpen skills. *Music Ace* also includes an innovative *Music Doodle Pad* to facilitate easy composing. Students can create their own tunes using six different instrument sounds. These compositions can be saved and played back for family, friends and teachers. Users can also take a break from composing to listen to a variety of popular and classical music selections from the Jukebox section of the *Music Doodle Pad*.

What makes *Music Ace* and *Music Ace II* are particularly useful for educators in that their school edition includes an 80-page Music Ace Teacher's Guide that includes: suggestions for classroom instruction, detailed matrices of concepts explored in each lesson and game, 20 suggested activities for more creative uses of *Music Ace* and *music Ace II*, 40 reproducible blackline masters, lesson progress sheets, award certificates, spelling games with note names, various staff activities, and several other tools to enhance the students' music education process. Volume 3, *Music Ace 3*, will be available later in early 2001 which will make *Music Ace* and *Music Ace 2* a very comprehensive music theory software for music teachers at the elementary and middle school levels. *Music Ace* and *Music Ace 2* are also popular at the high school level as well. Band and orchestra directors are using it as a review for students that might be having trouble with specific items, such as bass clef notes and intervals.

*Music Ace 2* contains 24 engaging, self-paced lessons that accelerate development of fundamental music skills and music theory. Lessons cover: standard notation, tempo comparing rhythms, rhythmic dictation, echoing, counting, quarter notes, eighth notes,

rests, measures, all key signatures, hearing melodies, melodic contour, syncopation, half notes & ties, dotted quarter notes, sixteenth notes, rhythmic composition, time signature, major & minor scales, intro to intervals, three sounds per beat, 6/8 time, intro to harmony, ear training, composing melodies, and distinguishing melodies & harmonies.

*Music Ace* and *Music Ace 2* by Harmonic Vision are \$79.95 for single users with the 80-page educator workshop described above. The special versions designed for use in classrooms and music studios are also available, including school editions that can track the progress of 10 students, a non-networked site license version can track 300 students (30 CD-ROM's of 10 users each). The network version will track 3,600 students, 5, 10 and 15 computer lab packs are available tracking 50, 100 and 150 students respectively. Other combinations are also available. A free demonstration copy of *Music Ace* and *Music Ace 2* can each be download from the following web site:

<http://www.harmonicvision.com>. Address: 906 University Place, Evanston, IL 60201.

Phone: 800-644-4994. <<http://www.harmonicvision.com>>.

- *Auralia* by Rising Sun Software (PC and Macintosh), \$149 for single user and also available in site licenses. Windows prerequisites: Pentium® Processor or higher Hard disk with 10mb of free disk space, Windows 95®, Windows 98® or Windows NT® , and soundcard.. Macintosh prerequisites: PowerMac or Mac with 68040 processor recommended, System 7.5 or higher, 8-16Mb RAM Minimum (depending on processor) hard disk with 8mb of free disk space, CD-ROM Drive for installation and MIDI options . With 26 topics, *Auralia* is the most comprehensive ear training application on the market. It is equally suitable for both classical and contemporary musicians from middle school to

professional musician. I like how the different exercises is divided into four topic areas: intervals & scales, rhythm, pitch & melody, and chords. In addition, ;the exercises for each topic are graded. The best feature in the program is that all of your results are recorded, and you may sing or play answers using your microphone or MIDI keyboard. What makes *Auralia* so powerful is the you can create customized tests for you and your students with the “Professor.” The record keeping reports can be shared with its sister program, *Musition* which does music theory so both aural training and music theory records can be done together providing teachers and students with unusually well detailed reports. Though Auralia is produced by an Australian company, they have a toll free phone number from the U.S.A.: 1-888-667-7839.

<http://www.risingsoftware.com/auralia>.

- *Musition 2* by Rising Sun Software (PC), \$119.00. Windows prerequisites: Pentium® Processor or higher, hard disk with 40mb of free disk space, Windows 95®, Windows 98® or Windows NT®, soundcard and MIDI options. *Musition 2* is a comprehensive music theory and fundamentals package for music students of all ages and abilities. *Musition's* interactive teaching makes learning music theory fun and easy. The main screen of both *Auralia* and *Musition* open up with four large buttons, each signifying a group of topics or modules. Individual topics are accessed using the slightly smaller buttons underneath. Click on a button to enter a topic, select the level of practice and click the 'Start' button. It's that easy! The structured drills and instant feedback create a stimulating learning environment, enabling students to achieve their maximum potential. Complete with 25 topics and sophisticated record keeping features all organized within

only four topics of instruction: note reading, key centers, terms & symbols and instruments. *Musition 2* has the same record keeping capabilities and customized tests capabilities as *Auralia*.. <<http://www.risingsoftware.com/musition:>>.

- *Music Lessons* and *Music Lessons II* by MiBAC Software (PC and Macintosh), \$119 and \$149, respectively. Windows prerequisites: Windows 95/98/NT4/2000 SoundBlaster and MIDI compatible. Macintosh prerequisites: Mac 68K or PowerMac, MacOS 7.1.1 or newer, MacOS 8 or MacOS9 and optional MIDI. Both products are open-ended design in which you can work on the drills in any order with hundreds of drills possible. *Music Lessons* is a very efficient product with eleven interactive drill and practice applications to read and understand music for middle and senior high school level students. The drills include Note Names, Circle of Fifths, Key Signatures, Major/Minor Scales, Modes, Jazz Scales, Scale Degrees, Intervals, Note Durations, Intervals Ear Training and Scales Ear Training. Each drill has multiple skill levels and can be done in treble, bass or alto clefs. Contains detailed records of student scores which can be saved, displayed and printed. Can be used with or without MIDI.

*Music Lessons II* may be the most comprehensive chords and harmony software available. This software has six areas of study: chord elements, triads, triads ear training, seventh chords, seventh chords ear training and roman numeral chord identification. The roman numerical identification is great for Advanced Placement Music Theory exams preparation. For each area, there are three study activities: naming, writing and playing. Each area of study has three to four subdrills, and each subdrill has multiple settings. The easier settings work well at middle school and the advanced settings are suitable for

college study. I like the custom drills (including ear training) that can be easily created and there are five clefs available: treble, bass, alto, tenor, grand or any combination of these. <<http://www.mibac.com>>.

- *Listen* by Imaja (Macintosh), \$99. Prerequisites: any Macintosh model from the Mac Classic and later, System 6, System 7, OS 8, OS 9 or later, Power Macintosh and 68K compatible, Apple MIDI Manager or OMS (Open Music System) supported, CD-ROM drive or floppy disk drive, 500K RAM and 800K Disk space and optional MIDI. Solid music theory program to strength ones perception of melodic and harmonic material. Exercises include: single notes, melody, growing melody, intervals, triads, 7th, 9th, 11th and 13th chords, random atonal chords, interval identification, chord type identification, and inversion identification. Most exercises in Listen are matching. The user is presented with a melody, interval or chord and must match it by playing on the piano, guitar, or MIDI keyboard. Users can change the level of difficulty by changing the key, scale or mode, melody or interval range, chord sets, chord inversion sets, chord arpeggiation, and pace. There are 5 preset levels of difficulty, and users can also customize Listen with their own settings. Recommended from middle school to college. Features some very good drill and practice. <<http://www.imaja.com>>
- *Essentials of Music Theory* by Alfred Publishing (PC and Macintosh), \$29.95 for volumes 1, 2 and 3 each for student version or \$59.95 for all three volumes. Educator version at \$99.95 per volume or \$199.95 for all three volumes. Macintosh system requirements: Macintosh 68040 processor or higher Mac OS 7.1 or higher, 16 MB RAM, 18 MB of hard disk space, 640 X 480, 256-color display and 4X CD-ROM drive. PC

system requirements: 486-DX2 66 MHz or higher CPU, Windows 3.1 or higher, 16 MB RAM, 18 MB of hard disk space, Windows-compatible sound card, 640 X 480 pixel 256-color display and 4X CD-ROM drive. Does not have MIDI options. A unique music theory material in that it does not require any prior musical experience. The software is based on the best-selling series of the same name. There are three books of 40 pages each, with each book contain 6 units. A unit consists of four or five pages of instructional material, including written exercises, an ear training page and a review page. The ear training module features acoustic instruments such as piano, flute, clarinet, alto saxophone, trumpet, trombone, violin and cello. In addition to listening examples, the ear training also includes rhythmic, melodic and harmonic dictation. Pedagogically, Alfred's Essentials of Music Theory features narration, musical examples and animation that strengthen and promote learning. Scored reviews help you track student progress. The record keeping module tracks basic student information such as a name, address, an e-mail address, phone numbers, etc. This program which consists of three volumes. Volume 1 covers 25 lessons including treble and bass clefs, common time signatures, accidentals, whole and half steps tempo makings and articulations to up to 8th notes and rests. Volumes 2 and 3 will be released early in the year 2000. Volume 2 features: tetrachords and major scales, key signatures, chromatic scale intervals, circle of fifths, perfect, major and minor intervals, augmented and diminished intervals, solfegee and transposition, sixteenth notes and rests, dotted eighth notes and eighth note, triplets , common time and cut time, 3/8 and 6/8 time signature, pick-up notes and syncopation, primary and major triads,. Scale degree names and V7 (dominant 7th) chord. Volume 3

features: 1st and 2nd inversions of triads inversion of V7 chords, figured bass, major chord progressions minor scales and minor triads, augmented and diminished triads, primary triads in minor keys minor chord progressions, modes, harmonizing a melody in major and minor keys, broken chords and arpeggiated, accompaniments, passing and neighboring tones, composing a melody in major and minor, keys, 12-Bar Blues chord progression and Blues, scale and basic forms of music

Together, the three volumes have 75 lessons which represents a rather comprehensive amount of music theory instruction that progresses in small increments. The Educator Version has all the features of the Student version, plus up to 200 users, printable custom tests and complete record-keeping capabilities for up to 200 users. One of the strong points of this product is that it reinforces new concepts with colorful games and exercises. It also maintains students' overall and individual scores for each unit of instruction. All exercises and ear training screens can be replayed for further reinforcement before the student moves on to more challenging material. In the review section at the end of each unit, although students do get immediate feedback indicating which answers are correct or incorrect, they may not go back and change an answer once it has been entered. What makes this theory course innovative is that it is available in either three separate books of 40 pages each with two audio CD's or on a CD-ROM. The ability to use this theory class with and without a computer CD-ROM is unique, especially if you don't have enough computer workstations. Thereby, students can take the books home and do the theory assignments outside of class. Or they can purchase the low-priced Student Version CD-ROM, record their score at home, and then e-mail it to the teacher or bring it in on a

floppy disk for the teacher to import into the Educator Version. A Teacher's Answer Key book is also available which includes the answers to all exercises and review pages, and written ear training examples for teachers who prefer to use the piano for the ear training. There are fun activities such as a crossword puzzle, word search game, note naming game and dynamics reinforcement game. <<http://www.alfredpub.com>>.

- *Musica Analytica* by ER Technologies (PC and Macintosh), Macintosh system requirements: PC system requirements: Pentium or higher CPU, 10 MB RAM and 13 MB of free hard disk drive space. Macintosh 68020 and higher (power PC preferred) or PC Pentium and higher, 10 MB RAM and 13 MB of free hard disk drive space. There is a MIDI option. *Musica Analytica* is an advance music theory software application that specializes in customized your own individual theory instruction from tutorials and publications, to assignments, tests and multimedia lessons. The templates designed for such customization from music notation, text, question and answer, graphic, movie and sound frames. Simply position these frame objects where you want them when designing your own instruction. Another powerful feature is the ability to analyze the music from elementary to advanced levels of music theory. You can generate documents from note and interval identification to elaborate documents dealing with chords, scales, chord progression, and part-writing treatment. The record keeping section is interesting in that it records a history of help usage along with a history of the problems encountered.

I particularly like the voice leading and part-writing treatment and analysis for parallel checking, voice spacing checks and leading tone resolution checks. Students can get immediate feedback on their part-writing after working on it. Wish I had such a software

application when I was in college forty years ago! Web: <<http://www.ertechsoft.com>>.

- *Music Theory 1* and *Music Theory 2* by Maestro Music (PC and Macintosh), \$165 each (site license also available) on a hybrid Windows/Macintosh CD-ROM. Macintosh prerequisites: Mac LC and above. PC prerequisites: Windows 95 and sound card. RAM is really not an issue with any of the Maestro Music software products. If your computer runs, you already have enough RAM for all Maestro Music software applications! There is no MIDI option. Both of these products are two comprehensive music theory programs each featuring 18 tutorial lessons along with some drill and practice options within each lesson. Both programs are literally “bomb” proof. Just give them to your students and they learn instantly via the tutorial format. Ear training is well integrated in both programs as is record keeping with hundreds of students possible. Their pedagogical strength is their tutorial instruction rather than just drill and practice.

*Music Theory 1* teaches music literacy with such emphasis on note names, note values and fundamental terminology are presented both aurally and visually. Level of instruction is ideal for first year band, orchestra or choral students in fifth or sixth grade. I really like these programs with middle school students. However, these programs can also be useful for more advanced groups which include students who may not have comparable understanding of fundamentals to the majority, and could benefit from independent study at the computer. I also find that elementary students can also use *Music Theory 1* well.

*Music Theory 2* works extensively with dynamics, meter, tempo and interval. Also developed are the concepts of whole and half step and sharp & flat, preparatory to

introducing scale and key signatures. Level of emphasis is for second-year students and beyond. Ear training is particularly well integrated into each program. Both of these programs are basically in a text book format and that's why they are so user-friendly oriented for students to use them without any teacher input.

Note: Maestro Music also produces four levels of comprehensive music theory software available for Apple II computers (*Level I, Level II, Level III and Level IV*) that can be used as well that actually beyond the contents of *Music Theory 1* and *Music Theory 2*. The Apple programs are priced at \$150 per level which makes them quite a buy for Apple users.

### **Closing Comments**

Most publishers have free demonstration copies that can either be downloaded from their web site or can be mailed to them on floppy or CD-ROM. Never purchase a software product without trying it with your students first. You will be surprised that your students are the final barometer in accessing software for teachers will not always share the same tastes with students especially in pacing and user-friendliness. And it is the students who need to use the software rather than you. Be very much aware that you will need two kinds of music theory software for your students: drill and practice and tutorial. Tutorials can teach concepts without a teacher's input and drill practice gives students in-depth practice to master what concepts you have already taught them. Your students really need both kinds of software applications to maximize what computers technology can do for them. In addition, some of your students may also need pre-reader developmental software that introduce the very basic fundamentals to students who cannot yet read music.

In closing, do not purchase music theory software without careful evaluation and investigation of what they do and what they do not do for your students. You will thank me for this frugal advice as try the demonstration software that is available for you at no charge to you!