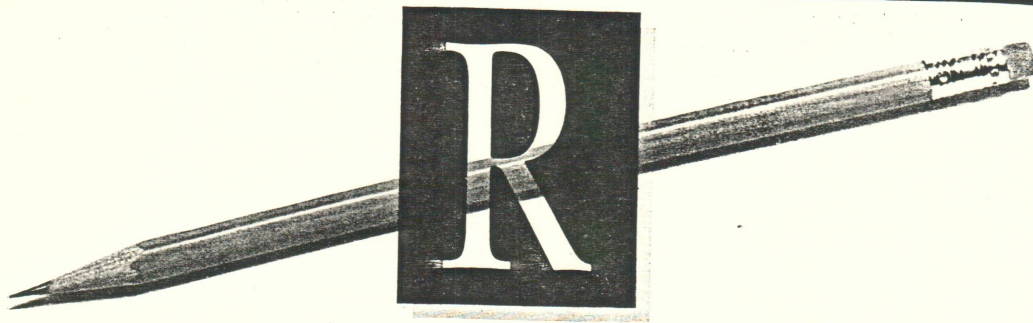


THE RESOURCE CENTER



By MARGARET MORABITO

In the 1970s, educators used the microcomputer primarily for teaching technically oriented computer science and engineering courses. Since then, the use of the microcomputer in education has broadened to the point where its impact is now felt in a wide range of non-technical areas.

Most microcomputers have features that make them useful in a variety of subjects, such as language arts, social studies, mathematics, history and foreign language study, to name a few. As long as the computer can handle text displays and some graphics, it can adequately handle software created for many of these courses.

In certain subjects, software requirements are more demanding. Educators in the creative and fine arts, for example, are gradually realizing the computer's potential to create graphics design and to produce sound. Music instruction, in particular, is an area in which computers are becoming more active.

From simple sound recognition to multi-voiced composition, the music curriculum demands special features from a computer, such as the ability to produce monophonic and polyphonic sounds, to handle high-resolution graphics and to operate attached MIDI instruments. Teachers are discovering that the C-64 is effectively designed to fill these requirements for music department course work.

The C-64 has a built-in sound synthesizer (the SID chip), which is capable of producing multi-voiced sounds, with up to three voices simultaneously. For large-scale sound output, you may attach external am-

Educators are now bringing computers into fine arts departments. See how one college and one middle school are using C-64s in music courses and for administrative work.

plifiers and speakers to this computer, or you can use the speaker built into your video monitor. The C-64 also handles high- and low-resolution color graphics.

Furthermore, if you want to attach MIDI instruments to your C-64, for the study and production of more intricate musical arrangements and electronic sound, you may do so by purchasing a MIDI interface. Due to their low price, the built-in sound and graphics capabilities and the wealth of music software available for them, the C-64 and the C-128 are logical choices for computer-assisted instruction in music.

College Music Department

For the music department of Augustana College, in Sioux Falls, South Dakota, the C-64 has become a sound and multifaceted investment. It is used for music instruction in those courses that currently rely on drill and practice, and it has been a time-saver with administrative chores.

Two years ago, when the college created computer labs in each of its classroom buildings, Professor Walter May, Chairman of the Music

Department, began to get familiar with the C-64. At that time, May knew nothing about computers nor how they could help him in his work, but, through the encouragement of the college administration and guidance from his son at home, he began to learn how to use the 64.

Says May, "I began to realize how useful it would be, not only for computer-assisted music instruction, but also in my administrative role as department chairman."

C-64 in the Music Curriculum

May uses C-64s in a music laboratory for his music fundamentals courses. At the beginning of the semester, he introduces the C-64 to his class, demonstrating how to use the system and its software. From then on, students use the music lab for regular assignments and practice.

The computer is specifically used for teaching the major and minor scales, all the major and minor key signatures, all the intervals and their inversions, and four types of triads and their inversions. It is also used for ear-training in general.

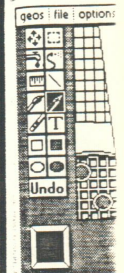
The computer "saves a lot of class time that used to be taken up with this kind of drill," relates May. "Now the students can do this on their own time and as often as they wish." Furthermore, the students enjoy the interaction with the computers. May has been able to document students' progress from drill to drill and claims that this computer-assisted instruction is effective.

The Software Involved

The music fundamentals class is for beginning music students who are

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***MECC**
3490 Lexington Ave. North
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Pitch; Scales and Chords;
Terms and Notation; Rhythm

***Access Software**
925 East 900 South
Salt Lake City, UT 84105
Master Composer

Artworx Software Co., Inc.
150 North Main St.
Fairport, NY 14450
Allegro

***Cyberia, Inc.**
2330 Lincoln Way
Ames, IA 50010
Commodore 64 Tutorial, Vol. 2

Scarborough Systems
25 North Broadway
Tarrytown, NY 10591
Songwriter

***Mindscape, Inc.**
3444 Dundee Road
Northbrook, IL 60062
Bank Street Music Writer

***Tech Sketch, Inc.**
26 Just Road
Fairfield, NJ 07006
Music Port Keyboard with disk

Valhala Software
205 E. Hazelhurst
Ferndale, MI 48220
Keyboard Chord/Scale Master

***Electronic Courseware
Systems, Inc.**
309 Windsor Road
Champaign, IL 61820
Ear Challenger; Music Room;
Clef Notes; Listen

***Activision, Inc.**
2350 Bayshore Frontage Road
Mountain View, CA 94043
The Music Studio

Broderbund Software
17 Paul Drive
San Rafael, CA 94903
The Music Shop

***Electronic Arts Software**
2755 Campus Drive
San Mateo, CA 94403
The Music Construction Set

Melodian, Inc.
115 Broadway, Suite 1202
New York, NY 10006
Melodian Keyboard with
Concert Master software;
RhythmMaster

***Sight and Sound
Music Software, Inc.**
3200 S. 166th St.
New Berlin, WI 53151
Incredible Musical Keyboard;
3001 Sound Odyssey; Music
Processor; Kawasaki Synthesizer;
Computer Song Albums; Music
Video Kit; Kawasaki Rhythm
Rocker

Passport Music Software
625 Miramontes St.
Half Moon Bay, CA 94019
MIDI interface; MIDI/4
Soundware;
MIDI/4 Plus; MIDI/8;
Soundchaser 64 Keyboard

Waveform Corp.
1912 Bonita Way
Berkeley, CA 94704
ColorTone Keyboard with disk;
MIDI connector with disk

***Casio Inc.**
15 Gardner Road
Fairfield, NJ 07006
Casio Keyboard

***Yamaha International/Corp.**
PO Box 6600
Buena Park, CA 90620
Yamaha Keyboard

Table 1. List of music software, keyboards and MIDI equipment for the C-64. Asterisks indicate the manufacturers of products mentioned in this column.

considering becoming music majors, but who never received training in the rudiments of music prior to attending college. This training uses several software packages published by MECC (Minnesota Educational Computing Consortium): Pitch, Scales and Chords, Terms and Notation, and Rhythm. The goal is to remedy students' deficiencies in basic music concepts, so that they can enter the regular theory course sequence with others who have had previous training.

The Pitch program is used because it offers useful drills for learning to recognize intervals and conceptualize pitches. There are four modules in this program, and it's used more than the other three from MECC because of its slant toward college-level students. The other programs are used only in select cases, as they're intended for more elementary-level students.

May also relies on software from Electronic Courseware Systems, Inc. He has purchased four programs from this firm: Ear Challenger, a game in

volving tonal memory; Music Room, a tuning exercise involving the matching of pitches; Clef Notes, a drill program for learning the alto and tenor clefs; and Listen, a review of intervals, triads and seventh chords.

He uses Clef Notes in his advanced theory class, which requires the writing of musical scores using treble, alto, tenor and bass clefs. The other programs are used in the music fundamentals course.

For those classes requiring a lot of factual knowledge of the music associated with particular composers, styles, periods and countries, May creates his own study materials. He uses Commodore's Easy Quiz and Easy Lessons to make multiple-choice study aids, which are used by students as they review for tests.

Additional Uses of the C-64

For May, the C-64's value goes beyond the music lab. To keep track of students' grades in each course, May uses a program called Master Grades, from Midwest Software. He's able to

keep one year's grades on a single disk, providing a quick determination of current grade averages and a printed summary of grades at any time.

One of his most valued applications is Spinnaker Software's Better Working Spreadsheet, which keeps the current and comprehensive student records that he needs for his duties as academic advisor. He sets up the spreadsheet so that he can easily show a student his or her current status in the degree program and demonstrate the effect of improved performance in certain areas. At the end of an advising session, he gives each student a printout of his or her record.

May also uses Midwest Software's The Bottom Line to handle several large budgets. Business correspondence is done with Easy Script and a Silver Reed letter-quality printer. When planning trips for the college, May uses a program called Roadsearch Plus (Columbia Software) to pin down the details of the trip.

Meeting the needs of both music in-

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Photo 1. Eighth grade students at LaVenture Middle School explore the world of electronic music through the C-64.

struction and administrative tasks, the C-64 helps in all areas of Professor May's work.

Middle School Music Project

The LaVenture Middle School in Mount Vernon, Washington, is also using C-64s in its music department, but with a slightly different focus: electronic music. The school has a long history of music education and has taught a unit on electronic music for 15 years. Harry Weldon, the Music Coordinator and a 25-year veteran music teacher, is currently piloting a new project involving music and computers with the eighth-grade students.

Weldon feels that the computer can be integrated into the entire music curriculum. He has found it well-suited for teaching basic music skills, composition, pitch recognition and ear training, as well as for drill and practice.

The goal of the school's music program is to broaden the students' perspective to include a knowledge of many different areas of music. "Electronic music provides an excellent

way to do this," states Weldon. "Computers are 'in' with the students, and they have an eager interest to see how they may be used."

Weldon uses a wide range of music software in combination with traditional tools, such as tape recorders and audio-visual aids, to spark the interest of his students and to lead them from the basics through more advanced electronic music concepts.

An Overview of Weldon's Course

Weldon begins the course by introducing his students to the sounds of electronic music. They listen to and analyze the *Electric Light Parade*, from Walt Disney Productions, as well as *Dripsody*. Out of this experience, he makes the point that the composer of electronic music can use the computer to do his work more easily and rapidly.

To develop basic concepts about sound and music, the class first experiments with a variety of sounds and noises produced by tuning forks and instruments, and then with electronically produced sounds. A program called *3001: A Sound Odyssey*,

from *Sight and Sound*, provides the students with an introduction to the concepts of electronic music, as well as tutorials and hands-on sessions for studying each of the properties of sound: pitch, duration, volume and tone color. Another program used for this is the *Commodore 64 Tutorial, Volume 2*, from Cyberia, Inc.

In the beginning, all of the course work is done in class using one computer and multiple screens. According to Weldon, "The RF output of the C-64 makes this very easy to set up." Only after the students have a good working background of music concepts and the computer do they move into the school's electronic music lab.

As the course proceeds, the class learns about synthesizers and their capabilities. This is where the computer is used extensively for hands-on training. The class uses *Music Port (Tech Sketch)*, *The Incredible Musical Keyboard (Sight and Sound)* and both the Yamaha and Casio keyboards.

Eventually, students are introduced to composition programs including *3001* and *Kawasaki Synthesizer (Sight and Sound)*, *The Music Construction Set (Electronic Arts)*, *Master Composer (Access Software)*, *Bank Street Music Writer (Mindscape)* and *The Music Studio (Activision)*.

The success of the school's electronic music program is due partly to the popularity of the C-64 and C-128. Most students have these computers at home and thus can easily follow up on their classwork. They can also contribute to the school's lab by bringing in their own joysticks and other peripherals. Although this school could choose from a variety of computers, it chose the C-64 to begin the project, partly because so many students were already familiar with the C-64 but mainly, as Weldon says, "because of the outstanding features of the SID chip."

Thank You

Walter May and Harry Weldon are taking important steps by introducing computers into their courses. Their experiences can provide a clearer path for others who want to learn more about how to integrate

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provides the computer into the areas of music instruction and administrative work. I'd like to thank both of these educators for so readily contributing their experiences and time to this installment of The Resource Center. I welcome responses from those of you who are using C-64s, VIC-20s or C-128s for educational purposes.

Tips from Teachers

In response to the February Resource Center on networking, some educators wrote offering tips about how to overcome lockup problems when employing multiuser switches. Benado, of Russell Sage Junior High School in Forest Hills, NY, writes, "The problem of lockup is a major one. All too often a student will lose many hours of work because his program will not save. Many times students' programs become in-

termixed, and the saved program is worthless. We knew this was a problem we had to live with, but that didn't make the student feel any better when it happened. Lockup could happen at any time, not just when more than one computer was accessing a peripheral simultaneously. A solution that sometimes works is to disconnect the power cord from the VIC Switch and then reconnect it."

Curt Cardine, from the Winchester Elementary School in Winchester, NH, offered this advice: "RUN's 1985 Special Issue published a Magic trick that works extremely well with a networking error. By typing POKE 144,0

and pressing the return key, most Device Not Present errors can be cleared up. Sometimes the students have to enter this Poke number twice before it works, but it usually works

well. Another trick is to turn the printer off and on again; this resets the switch." R


If you are using Commodore computers for educational purposes (at home or in school) and would like to share your experiences through The Resource Center, write me a letter detailing the equipment you're using, the subject areas you're involved in, the grade level or age of your students, software that has been effective and any other information you feel like including. Send letters to:

Margaret Morabito
c/o The Resource Center
RUN Editorial
80 Pine St.
Peterborough, NH 03458

You can also leave messages in my on-line mail boxes: CompuServe (70616,714); Delphi (MARGM); and QuantumLink (MARGM).

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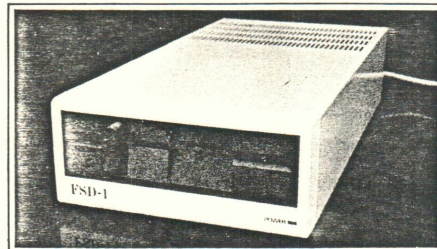
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