The paper demonstrates how school districts can have a low cost software library for instruction by utilizing public domain software. Such software can be used to augment the curriculum and to meet the individual needs of special education students. Specific examples of how one school district has used public domain software in computer-assisted instruction are described. An introductory section explains what public domain and user supported software are. Selection criteria are offered to aid in the selection of software for classroom uses or for a specific student. Applications in specific curricular areas are considered including examples of how such software has been integrated into science, mathematics, social studies, reading, language arts, problem solving, and fine arts curricular areas. Finally, examples of the use of public domain software in instructional support are given including instructional management, electronic bulletin boards, word processing, and programming. Specific sections cover such topics as: "Copying Apple Public Domain Disks"; "Getting Apple Public Domain Software to Run"; "Getting IBM Public Domain Software to Work"; "Public Domain Vendors"; and "Computer Resources for Teachers." Also included is the script for a slide show presentation. (DB)
PUBLIC DOMAIN SOFTWARE
IN SPECIAL EDUCATION.

NO CHEAPER SOFTWARE ANYWHERE!

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BACKGROUND

One of the principal challenges that educators must face today is providing a growing number of instructional services to special education students in the face of budgetary constraints and changing school environments. To meet this challenge, many school districts have resorted to utilizing computers to assist with instruction.

According to the literature, computers are gaining wide-spread acceptance as one of the most cost-effective ways to meet these needs. Two recent surveys show that 42 percent of the nation's school districts have one or more microcomputers (Education TURNKEY, 1982).

Elting and Bailey (1987) noted that:

The microcomputer is a versatile piece of technology. A standard system... can serve a variety of purposes simply by changing the software (p.32)

The presentation will demonstrate how school districts can have a low cost software library for instruction by utilizing PUBLIC DOMAIN SOFTWARE. By working with curriculum specialists, the software can be used to augment the curriculum and to meet the individual needs of special education students.

Specific examples of how one school district has used PUBLIC DOMAIN SOFTWARE in computer-assisted instruction in special education classrooms and for special needs students (e.g., a machine is assigned to a specific student for compensatory purposes) will be described. Some aspects of actual instructional applications will be demonstrated including:

SELECTION CRITERIA: review of steps and criteria used to select software for classroom uses or for a specific student's needs depending on handicapping conditions;

APPLICATIONS IN SPECIFIC CURRICULAR AREAS: actual examples of how software has been integrated into Science, Mathematics, Social Studies, Reading, Language Arts, Problem Solving, and Fine Arts curricular areas will be presented.

INSTRUCTIONAL SUPPORT: examples of public domain software which could be used for in instructional management, tapping electronic bulletin boards, word processing, and programming will be reviewed.

BEST COPY AVAILABLE
PUBLIC DOMAIN AND USER-SUPPORTED SOFTWARE

Public Domain software was originated by authors who chose not to seek formal copyright privileges. These authors placed their programs in the "public domain," meaning they are free to anyone who would like to copy and use them. They may be reproduced and distributed at no cost. Because there is no copyright on these programs, they may also be altered by the user. Some of these disks contain the source program, allowing the code to be changed if needed.

Many of these programs were so specific in their use that there was no real market for it. Others were simply written by authors who were designing a program to fill a personal need and simply gave it away.

User-supported (ShareWare or FreeWare) software falls under a different legal category. Although these programs are copyrighted, the authors have chosen to release them directly to the user, rather than sell their programs through the retail market. Thus, the user deals directly with the author, eliminating the extra costs of marketing. This allows the user to purchase software at a fraction of the cost of retail.

The authors of user-supported software generally requested a fee from the user. Compared to retail prices, this fee is nominal. The fee usually provides the user with technical support, extended documentation and notification of updates. The fee also provides an incentive to the author to continue developing useful, cost-effective software products.

When running a user-supported program, you will usually see a notice of copyright on the opening screen. You will also see the amount requested by the author if you choose to continue using the program. Although this software is generally copied and distributed freely through user groups and electronic bulletin board systems, the user is legally bound to send the requested fee to the author if he/she decides to continue using the program.

WHY USE PUBLIC DOMAIN SOFTWARE? Public domain software can provide a school district with inexpensive yet quality software. You can get short, specialized subroutines to fully formed, powerful word processing, spreadsheets, database packages, and of course games.

It's economical whether you are a beginner or a pro! Our purpose today is to match your need for high quality, low cost software with what we feel is the best available public domain software for education.

Benefits of public domain software include:

--low cost
--wide variety
--low cost
--high quality (if used selectively)
--low cost
--In short, school districts (or schools) can have a low cost library for instruction, administration and instructional support.
STARTING YOUR PUBLIC
DOMAIN SOFTWARE LIBRARY

The major focus of computer usage in education has shifted from bringing knowledge of the computer and basic computer skills to its teachers and students, to instructional use in every content area. As John Sculley says, the computer is now an appliance. We got along without it before, but life with it is sure easier. It can be compared to your Cuisinart or your blow dryer. We got along without them before, but life is sure easier with them.

Computers, as we well know, are wonderful motivators. But nowadays they are, and should be, used for much more than reinforcement for a job well done. They can now be used with ease in every content area to foster creativity, to reinforce a concept, to develop problem solving capabilities, to aid in information access, and bypass a disability.

The first pieces of software to obtain are the core, or tool software. This set of core software will serve the students' needs as well as the teachers' needs. These include a word processor with printing capabilities, a data base, a spreadsheet, a telecommunications program and programming language. Why these pieces? These pieces can be integrated into any content area, allow for a great range of flexibility, and can be used again and again by the same student on a different project.

Let's Look At What These Core Pieces Can Achieve:

1. Using the word processor facilitates writing skills and the printed hardcopy can be a very positive reinforcer.

2. The use of a database is fast becoming a basic skill. The student has to know how to use a data base in order to find and organize information.

3. The use of a spreadsheet is not only beneficial in math applications and problem solving, but is also an organizational tool as well.

4. A programming language, such as Logo or Basic, is good for problem solving with some students.

5. A good telecommunications piece of software is a necessity. A wealth of information lies at the student's fingertips through the telephone lines.

After we have the core software, we look at specific content areas. There is certainly a place for skill and drill software in Special Education, but it need not be boring. Careful selection can make it quite exciting as we will demonstrate.
Criteria for careful selection of software and hardware to support content area goals should be program foundations. What makes a good piece of software? There are many influential factors. Probably the most important is your need. Just what do you need it to do? You must also consider your hardware. Is this particular piece of software compatible with your hardware? Actually the ideal situation is to consider your software options before purchasing your hardware. Preview the program. Work it all the way through. Is the language appropriate for the grade level of your students? If it is drill and skill software, what kind of reward system is available...is the right answer reinforcement more rewarding than the wrong answer reinforcement?

COPYING PUBLIC DOMAIN DISKS
AND GETTING THEM TO RUN

Often times, someone will give you a PUBLIC DOMAIN SOFTWARE disk for you to copy and use. Since operating systems differ, copying and running disks for the Apple Computer will be presented first. We will also include a list (Table I, see page 8) of what New Mexico Technology and Media (NMTAM) members feel are the 30 best Apple public domain software disks.

IBM copying and running procedures will be handled separately in a section that follows.

Evaluating Public Domain Software

What makes a good piece of software? There are many influential factors. Probably the most important is your need. Just what do you need it to do? Do you plan to use it just for drill and practice? Do you need a piece of software that can be used in many content areas, i.e., word processing or a data base.? For which content area do you need it?

You must also consider your hardware. Is this particular piece of software compatible with your hardware? Do you need a color monitor? What are the memory requirements? Does it have printing capabilities? Does it require a peripheral?

Try the program yourself. Work all the way through it. Are there any bugs? If so, are they of a type you can fix? What type of program is it...a skill and drill? or is there problem solving involved? Is it a utility program, one that can be used in many ways and in many areas? If appropriate, let some of your students try it!

Is the language appropriate for the grade level in which you intend to use it? Is it appropriate to the grade level in which you teach?

If it is a drill and practice piece of software, what kind of reward system is built into it? Are the proper responses appropriately rewarded and the improper responses handled appropriately?

On the following page is a criteria sheet for evaluating software in the Albuquerque Public School district. This sheet is used by our software previewers as the preview commercial software. Many of the criteria is appropriate for public domain software, too.
Criteria For Software Review

TITLE:  
YOUR NAME:  
PUBLISHER:  
PLACE OF PUBLICATION:  
AUTHOR/PERSONS/GROUP:  
ANNOTATION (MAXIMUM OF 226 SPACES):  

SUPPORTED GOALS AND OBJECTIVES:  

PHYSICAL DESCRIPTION  
COMPUTER NAME/EQUIPMENT:  
DOS LEVEL:  
MEMORY REQUIREMENT:  
GUIDE:  

SUBJECTS  
468755 READING:  
633075 MATHEMATICS:  
420690 LANGUAGE ARTS:  
675098 SCIENCE:  
700868 SOCIAL STUDIES:  
OTHER:  

TYPE OF PROGRAM  
191970 DATA FILES:  
111700 DRILL AND PRACTICE:  
305297 GAMES:  
607220 PROBLEM SOLVING:  
694222 SIMULATION:  
111701 TUTORIAL:  
785988 UTILITY:  

STUDENT REACTION  
ENJOYED:  O.K.:  HATED:  

Page 5
THE APPLE

Copying Apple Public Domain Disks:

All these instructions are assuming you have a double disk drive.

COPYING FROM A 5 INCH DISK TO A 5 INCH DISK

****Insert the DOS 3.3 SYSTEM MASTER. Type at the 1 RUN COPYA
and press return. Follow the directions on the screen.

COPYING FROM A 5 INCH DISK TO A 3 INCH DISK

***Use the GS system disk., opening up the SYS. Utilities; then
open the file SYSUTIL.SYSTEM

***Format the 3 inch disk from the menu section WORK ON ENTIRE
DISKS

***Select COPY FILES and press return.

***Individual files must then be copied to your destination disk.
You will be asked where your source disk is...Slot 6, Drive 1...
and where your destination disk is ...Slot 5, Drive 1. Then
select the individual files you want copied.

Not all will copy and run correctly...BEWARE!

COPYING A 3 INCH DISK TO A 3 INCH DISK (MACINTOSH)

***Insert the systems disk in the internal drive.
***When the disk icon appears insert your destination disk in the
external drive.
***Follow the prompts on the screen to initialize the disk.
***The newly initialized disk icon will appear on the monitor screen.
***Place the pointer on the system disk icon and click; it will turn
dark. Then press the option key and the letter E to eject this
disk.
***Insert the disk to be copied into the internal drive.
***Place the pointer on the disk icon to be copied; click and drag
this icon onto the newly initialized disk icon and follow the
instructions on the screen.
GETTING APPLE PUBLIC DOMAIN SOFTWARE TO RUN

Very few public domain softwares have a menu that automatically appears when you boot up the disk. More often than not, you will have to look at the disk catalog and run the programs from it. How is it done?

1. Insert the disk into the disk drive and turn on your machine.

2. Make sure the caps lock key is depressed.

3. If there is no automatic menu, the initializing program will appear along with the basic prompt (>) and a flashing cursor.

4. At the flashing cursor, type CATALOG and press return.

5. Here is a sample of what will appear:

   A 002 HELLO
   B 014 ALLEY CAT
   B 020 SMALL SMALL WORLD
   I 011 CHRISTMAS TREE SONG
   I 022 DECK THE HALLS
   I 029 MUSIC GENERATOR
   A 021 HAPPY BIRTHDAY
   A 013 BACH

6. This is a list of the files, or programs, that are on the disk.

7. Notice the letters A, I, and B at the far left. These indicate whether the program is written in Applesoft Basic, Integer Basic, or is a Binary file.

   a. Programs with A in the left hand column run when you type JRUN filename. These programs are written in Applesoft Basic.
   b. Programs with a B in the left hand column run when you type JBRUN filename. These are binary files.
   c. Programs with an I in the left hand column must have the DOS 3.3 system master booted in first. Then at the prompt type JRUN filename.

IT IS VERY COMMON TO RUN INTO PROGRAMMING ERRORS IN PUBLIC DOMAIN PROGRAMS. SOME CAN BE EASILY FIXED; SOME TAKE A GOOD KNOWLEDGE OF THE PROGRAMMING LANGUAGE. ON THE OTHER HAND, SOME RUN LIKE A CHARM. TRY YOUR LUCK!!

Page 7
<table>
<thead>
<tr>
<th>#</th>
<th>TITLE</th>
<th>DESC</th>
</tr>
</thead>
<tbody>
<tr>
<td>005</td>
<td>ART</td>
<td>paint program using a joystick, with 15 colors</td>
</tr>
<tr>
<td>010</td>
<td>MATH</td>
<td>10 programs compiled by Lesley College</td>
</tr>
<tr>
<td>013</td>
<td>MATH PRIMARY</td>
<td>simple math programs with counting, simple problems</td>
</tr>
<tr>
<td>014</td>
<td>GAMES PRIMARY</td>
<td>very easy games for young children, many req. joystick</td>
</tr>
<tr>
<td>015</td>
<td>LANG. ARTS</td>
<td>dictionary game, grammar rules, parts of speech</td>
</tr>
<tr>
<td>016</td>
<td>TEACHER UTIL.</td>
<td>readability, grade book, test maker/taker</td>
</tr>
<tr>
<td>021</td>
<td>SCIENCE ELEM.</td>
<td>simulations, ecology, psychology, astronomy</td>
</tr>
<tr>
<td>022</td>
<td>SPACE RACE</td>
<td>5 program options for math, reading, lang. arts</td>
</tr>
<tr>
<td>025</td>
<td>APPLE CLASSICS</td>
<td>old time favorites like Lemonade &amp; Wumpus</td>
</tr>
<tr>
<td>027</td>
<td>GRAPHING</td>
<td>draws and prints out pie and bar graphs</td>
</tr>
<tr>
<td>028</td>
<td>STRAT.GAMES 1</td>
<td>16 games that require logic and thinking</td>
</tr>
<tr>
<td>029</td>
<td>STRAT.GAMES 2</td>
<td>more games including Rubik’s cube</td>
</tr>
<tr>
<td>030</td>
<td>SPELLING</td>
<td>6 word and spelling games</td>
</tr>
<tr>
<td>033</td>
<td>GENEODELY</td>
<td>database</td>
</tr>
<tr>
<td>034</td>
<td>SOCIAL STUDIES</td>
<td>9 games on the 50 states</td>
</tr>
<tr>
<td>035</td>
<td>MUSCIC</td>
<td>variety of songs, compose your own music</td>
</tr>
<tr>
<td>036</td>
<td>DISKASARUS</td>
<td>5 programs with the dinosaur theme</td>
</tr>
<tr>
<td>037</td>
<td>LIVING THINGS</td>
<td>introduction to the kingdom of living things</td>
</tr>
<tr>
<td>038</td>
<td>INSECTS</td>
<td>6 programs with the insect theme</td>
</tr>
<tr>
<td>039</td>
<td>HISTORY SIMUL.</td>
<td>problems of early English merchants, time of Fr. Drake</td>
</tr>
<tr>
<td>042</td>
<td>SPREADSHEET</td>
<td>spreadsheet with docs</td>
</tr>
<tr>
<td>044</td>
<td>FIREGROUND</td>
<td>simulation of a fire truck finding its way to a fire</td>
</tr>
<tr>
<td>046</td>
<td>HOME EC.</td>
<td>food values, calorie counts, stocks, mortgages</td>
</tr>
<tr>
<td>048</td>
<td>GENERAL DB</td>
<td>easy to use database</td>
</tr>
<tr>
<td>049</td>
<td>FREDWRITER</td>
<td>word processor</td>
</tr>
<tr>
<td>052</td>
<td>TIGUE’S WORDS</td>
<td>builds word searches from your words</td>
</tr>
<tr>
<td>053</td>
<td>DIVERSICOPY .</td>
<td>copy program</td>
</tr>
<tr>
<td>055</td>
<td>TELECOMHS.</td>
<td>teaching unit on telecommunications</td>
</tr>
<tr>
<td>056</td>
<td>JUNIOR WRITER</td>
<td>word processor for primary children</td>
</tr>
<tr>
<td>058</td>
<td>KID-MAIL</td>
<td>telecommunications simulation for kids</td>
</tr>
</tbody>
</table>

### TOTAL AVG

Printed 30 of the 30 records.
IBM PUBLIC DOMAIN SOFTWARE

Getting IBM Public Domain software to work takes a certain amount of sophistication which includes understanding the Disk Operating System (DOS); displaying, what is on your disk; running BASIC programs; running BASIC with one floppy drive; running BASIC with two floppy drives; starting EXE, COM, or BAT files; understanding filename extension conventions; and formatting and copying disks.

TABLE 2 presents all the necessary information (see pages 10 and 11 for Table 2). This material is taken from the PC-SIG LIBRARY (Fourth edition) by PC-SIG, INC., 1030 E. Duane Ave, Suite D, Sunnyvale, CA 94086. It was published in March of 1987.

Table 3 (see page 12) presents what NMTAM members think are the 30 best IBM Public Domain Software available.
3.5 Running BASIC with two floppy drives

First method:
With a two drive system, load DOS and then put the DOS disk in drive B: and the program disk in drive A: then type the following:

```
D:FILENAME (press ENTER or <CR>)
```

Second method:
With your DOS disk in drive A:

```
BASICA (press ENTER or <CR>)
```

When your screen displays an "a:" prompt, remove your DOS disk and place your program disk in its place. Then type:

```
RUN "MENU" (press ENTER or <CR>)
```

Once you have started the Library's programs of your choice in this disk with two excellent results: One is that you have a working copy of your PC-SIG program disk. "Working" means you can store files on it as well as you can boot your system from this disk instead of "doing the DOS swap and shuffle" all the time. The second is that your original PC-SIG is now MASTER which protects you against losing your valuable programs and all those records and data thereon.

3.5.5 Starting EXE, COM, or BAT Files

As mentioned above, many of the Library's programs have been compiled into files which are marked with the file extension .COM or .EXE, some of them end with "BAT" and will execute a series of commands in DOS automatically. While different in substance and origin, they all can be run in the same manner.

With .EXE, .COM or .BAT files, you do not have to load BASIC or any other program to start your application. For example, to run a program named FUNYFACE.EXE or FUNYFACE.COM or FUNYFACE.BAT all you have to do is type FUNYFACE and then press the ENTER key.

3.6 Filename extension conventions

Certain filename extensions have been adopted for specific types of files. These extensions tell you the user what kind of material is in a file.

The following table shows the extension conventions that are generally used, although there may be exceptions. "Listable" means that they are text files that may be typed using the DOS "TYPE" command, copped to a printer, or viewed using a text editor. Please refer to the Glossary at the end of this book for any unfamiliar terms used in this table.

<table>
<thead>
<tr>
<th>Extension</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>.ABS</td>
<td>Abstracts/brief, listable program descriptions</td>
</tr>
<tr>
<td>.APL</td>
<td>APL source files</td>
</tr>
<tr>
<td>.ASC</td>
<td>Listable ASCII text files</td>
</tr>
<tr>
<td>.ASM</td>
<td>Listable assembly language sources files</td>
</tr>
<tr>
<td>.BAT</td>
<td>BASIC source files</td>
</tr>
<tr>
<td>.BAS</td>
<td>Listable batch files</td>
</tr>
<tr>
<td>.C</td>
<td>Listable C language source files</td>
</tr>
<tr>
<td>.COM</td>
<td>Command files that are directly executed by typing the filename from DOS</td>
</tr>
<tr>
<td>.DAT</td>
<td>Data files</td>
</tr>
<tr>
<td>.DBF</td>
<td>dBASE II or III data files</td>
</tr>
<tr>
<td>.DOC</td>
<td>dBASE document files</td>
</tr>
<tr>
<td>.EWF</td>
<td>Executable text files</td>
</tr>
<tr>
<td>.EXE</td>
<td>Executable files by typing the filename directly from DOS</td>
</tr>
<tr>
<td>.FOR</td>
<td>Listable Fortran source files</td>
</tr>
<tr>
<td>.NDF</td>
<td>dBase II or III index files</td>
</tr>
<tr>
<td>.OBJ</td>
<td>Object files (used by a linker)</td>
</tr>
<tr>
<td>.PAS</td>
<td>Listable Pascal source files</td>
</tr>
<tr>
<td>.PIC</td>
<td>Color graphic screen images</td>
</tr>
<tr>
<td>.PRG</td>
<td>Listable dBASE II or III program files</td>
</tr>
<tr>
<td>.TXT</td>
<td>Listable text files</td>
</tr>
<tr>
<td>.UNP</td>
<td>Text files describing how to 'unpack'</td>
</tr>
<tr>
<td>.VCF</td>
<td>Viscascale templates</td>
</tr>
<tr>
<td>.WKS</td>
<td>Lotus 1-2-3 worksheets</td>
</tr>
<tr>
<td>.WRK</td>
<td>Symphony worksheets</td>
</tr>
<tr>
<td>.WS</td>
<td>Wordstar text files</td>
</tr>
</tbody>
</table>

3.7 Formatting and Copying

Formatting a blank disk is required before you can copy files to it. Notice the operative word here is "blank". Always make sure the disk you are formatting is blank or you lose whatever information you had stored on that disk prior to formatting.

To format a blank disk using a two-drive disk system. insert your DOS disk in drive A; remembering, of course, that you have A> showing on your screen and type:

```
FORMAT B: (press ENTER or <CR>)
```

You will be told to put a disk in drive B; in single drive machines you will be told when to switch disks. Place the blank disk in drive B: and press RETURN. You will then be asked on your screen whether you wish to "Format Another?" You then have the option of either formatting another disk or returning to DOS. Your screen should resemble the following:

```
Formatting...Format complete
362496 bytes total disk space
362496 bytes available on disk
```

```
Format another (Y/N)?
```

The DISKCOPY command is used to make a copy of an entire program on your freshly formatted disk. Making a backup copy protects you in case the original disk is damaged, lost or erased. To make a copy of a disk, put your DOS disk in drive A. To get to A> type:

```
A: (press ENTER or <CR>)
```

When your A> appears type:

```
DISKCOPY A: B: (press ENTER or <CR>)
```

You will then be asked to insert your Source original disk in drive A and your Target blank, formatted disk in drive B. Those single drive machines will be told when to alternately between drives A and B in order to complete the transfer. After you have accomplished this your screen should read:

```
Copy complete
Copy another (Y/N)?
```

If you want to copy another drive "Y" for "yes", you must be completed with the copying process. Then press "EXIT".

Often it is used to add files to a disk, such as BASICA.COM to a public domain disk, so you can easily run BASIC programs. Or, you can create a disk with selected files of your choice. Because of the variety structure, the most common format for copying BASICA from the disk in drive A to the disk in drive B is in type:

```
COPY A:BASICA: (press ENTER or <CR>)
```

Here the wildcard symbol * is used to copy multiple files. We used the wildcard symbol in the above example because compatible systems generally have more than one BASICA file.
3.1 Disk Operating System (DOS)

DOS is the heart of your system. It contains the necessary information for your computer to understand the commands you type in from the various programs. Thus allows you to retrieve information from a diskette or hard disk. You must start with DOS before using any program from our library.

Below are 5 basic DOS commands you will use:
- **DIR**
  - Abbreviation for Directory. Allows you to view the names of the files on the disk.
- **DISKCOPY**
  - Allows you to make copies of the entire disk.
- **COPY**
  - Allows you to copy files from one disk to another or to the printer.
- **TYPE**
  - Allows you to display the contents of the text on the screen.

Insert your DOS program disk in disk drive A: and turn on your computer. Please refer to your system manual if you are unsure of your disk drive locations. As your machine starts up, it may display a numerical count of your memory on the screen followed by a prompt (e.g., A>) and a red light appearing over your disk drive A. Lock your DOS disk in your A drive and you are off. The machine is now readying your DOS disk. You may be asked to fill in your memory on the screen followed by:

```
Insert your DOS program disk in drive A: and...
```

Almost 30% of the programs in the PC-SIG Library are either written in BASIC or have been compiled into .EXE or .COM files (please see the list of file extensions below). Programswritten in BASIC can be distinguished by the file extensions .BAS, .EXE, .COM, or .TXT, depending on your printer thereby allowing you to refer to it at any given time. To accomplish this after the A> type:

```
COPY README.TXT LPT:1
```

In order to read the text included on this disk, return to the A> and type:

```
TYPE README
```

This will allow you to see what is on the text file as it is scrolled to your screen. To stop this scrolling press the CTRL and NUM LOCK keys simultaneously. The scrolling should stop allowing you to read the information at your own pace. To start the scrolling again enter any key. It is suggested that you print the information on your printer thereby allowing you to refer to it at any given time. To accomplish this after the A> type:

```
COPY README.TXT LPT:1
```

The printer is suggested as the one you are attached to your system and where you keep your printer when not in use. For example, after the A> on the PC, you will need to type:

```
COPY README.TXT PRN
```

Please note that in following sections mention of the program BASIC.EXE is replaced by an all-inclusive use of the term BASIC for the program BASIC.EXE, the Advanced form of BASIC introduced with DOS 2.0 and above. Using the command for BASIC will invoke all the earlier forms of BASIC. For systems using Microsoft GWBASIC, the BASIC interpreter of the MS-DOS world, or other forms of BASIC, please see your User Manual.

3.2 Displaying what is on your disk

Now comes the fun part. With the A> and blinking cursor on your screen remove your DOS disk from drive A: and place in your first program. To start some programs in the library you must type "GO" and you are off. These disk are marked with a "GO" on the disk. Others will require a little different approach. For example, after the A> on your screen again type:

```
GO
```

This will show you a listing of the files on the program you are about to run.

```
Value in drive A is 1270 bytes

Directory of A:

1=100 UPP 123862 1-27-86 4:12p
101=200 UPP 117056 1-27-86 4:13p
DFIND BAT 85 2-09-86 10:08p
CD BAT 20 2-03-86 10:08p
INDEX TXT 38238 8-03-86 8:13a
MORE CMD 268 2-03-86 10:08p
ONGER TXT 3685 5-03-86 1:29a
PC-SIG TXT 598 5-03-86 1:29a
MDA TXT 2114 5-03-86 1:29a
README 2838 2-09-86 10:08p
SUBMIT TXT 1758 2-09-86 10:08p
UNESP TXT 1958 2-09-86 10:08p
16 Files 88833 bytes free
```

In order to read the text included on this disk, return to the A> and type:

```
TYPE README
```

This will allow you to see what is on the text file as it is scrolled to your screen. At this point you can stop your computer. This chapter is intended to get you started. The remainder can be read by your own computer with the help of the manual.

```
COPY README.TXT LPT:1
```

LPT1: means line printer 1 which works for most machines. PRN means printer, as it is used on the remainder of this section. Basic programs can be distinguished by the file extension .BAS if the filename. These require a different method of running the program.

The following require you to load BASIC for PC or BASICA, the advanced form of BASIC. On a PC, this can be done by typing BASIC or BASICA and the file name of the program that you choose to run. On a PC, you will need to load the BASIC ROM cartridge. Because the procedure depends on the system configuration of yours, you will need to read the next section carefully to get comfortable with yours.

3.3 Running BASIC programs

Almost 30% of the programs in the PC-SIG Library are written in the BASIC programming language. It is crucial that you understand how to run them on your system, whether it has one or two drives, whether it is a standard IBM or a compatible configuration. This section is devoted to giving you a clear step-by-step set of directions for these situations.

Please note that in following sections mention of the program BASIC.EXE is replaced by an all-inclusive use of the term BASIC for the program BASIC.EXE, the Advanced form of BASIC introduced with DOS 2.0 and above. Using the command for BASIC will invoke all the earlier forms of BASIC. For systems using Microsoft GWBASIC, the BASIC interpreter of the MS-DOS world, or other forms of BASIC, please see your User Manual.

Why the difference between PC-DOS and MS-DOS? IBM placed part of the BASIC in two hardware chips on your system called ROMs. The rest is on the PC-DOS disk; hence you need both present to run BASIC. BASIC programs run on the system board, which takes care of the execution of the program.
### Table 3

**NMTAM'S BEST IBM PUBLIC DOMAIN SOFTWARE**

11-20-1988 AT 16:11

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<tr>
<th>#</th>
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<tr>
<td>018</td>
<td>&quot;IQBUILD&quot;</td>
<td>BASIC games, IQ Builder series plus others, EDC</td>
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<td>076</td>
<td>&quot;HISTORY ED.&quot;</td>
<td>history lessons for mid school</td>
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<tr>
<td>095</td>
<td>&quot;MATH TUTOR&quot;</td>
<td>EDC: math tutor program</td>
</tr>
<tr>
<td>153</td>
<td>&quot;HANGMAN&quot;</td>
<td>best hangman game around</td>
</tr>
<tr>
<td>229</td>
<td>&quot;FUNNEL/BUCKETS&quot;</td>
<td>good collection of educ. games, EDC</td>
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<tr>
<td>249</td>
<td>&quot;EQUATOR&quot;</td>
<td>EDC: excellent educ. science programs, EDC</td>
</tr>
<tr>
<td>320</td>
<td>&quot;TOUCHTYPE&quot;</td>
<td>EDC: program for keyboarding skills</td>
</tr>
<tr>
<td>343</td>
<td>&quot;WORD PROC/KIDS&quot;</td>
<td>excellent word processing program for young children</td>
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<tr>
<td>359</td>
<td>&quot;MOONBEAM&quot;</td>
<td>educ. astronomy programs</td>
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<tr>
<td>407</td>
<td>&quot;VIDEO CHEM&quot;</td>
<td>shows chemical structures through programmed lessons</td>
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<tr>
<td>480</td>
<td>&quot;PC-OUTLINE&quot;</td>
<td>WP comparable to ThinkTank</td>
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<td>647</td>
<td>&quot;AMY'S PRIM. JR&quot;</td>
<td>EDC: early childhood programs for IBM PCjr</td>
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<tr>
<td>686</td>
<td>&quot;HELPDOS&quot;</td>
<td>EDC, excellent MS-DOS tutor program</td>
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<td>705</td>
<td>&quot;KIDGAMES&quot;</td>
<td>EDC: games for ages 2-10, excellent</td>
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<td>708</td>
<td>&quot;SPANISH HANGMN&quot;</td>
<td>EDC, spanish version of hangman, excellent</td>
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<td>709</td>
<td>&quot;CALENDAR MAKER&quot;</td>
<td>EDC makes calendars for any month or year</td>
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<td>714</td>
<td>&quot;DOTS/LABBITS&quot;</td>
<td>EDC, two fun games for young children</td>
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<td>756</td>
<td>&quot;MEMOIRS&quot;</td>
<td>electronic diary</td>
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<td>797</td>
<td>&quot;TEST&quot;</td>
<td>EDC, allows teacher to make own tests</td>
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<td>802</td>
<td>&quot;GAME OF LIFE&quot;</td>
<td>EDC, plays the original game of life</td>
</tr>
<tr>
<td>839</td>
<td>&quot;BIRTHDAY CARD&quot;</td>
<td>makes birthday and Christmas cards</td>
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<td>844</td>
<td>&quot;ABC GAMES&quot;</td>
<td>EDC 6 ABC games for young learners</td>
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<td>871</td>
<td>&quot;FANCY LABEL&quot;</td>
<td>prints address labels</td>
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<td>879</td>
<td>&quot;BIORHYTHMS&quot;</td>
<td>EDC, excellent biorhythm program</td>
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<td>391</td>
<td>&quot;WHEEL/MISFORTU&quot;</td>
<td>EDC wheel of fortune game</td>
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<td>903</td>
<td>&quot;VAR GRADE&quot;</td>
<td>excellent gradebook program for teachers</td>
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<td>916</td>
<td>&quot;AMANDA'S LOTTO&quot;</td>
<td>EDC early childhood letter lotto game</td>
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<td>922</td>
<td>&quot;WHIZKID&quot;</td>
<td>EDC, several problem-solving games, test-maker</td>
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<tr>
<td>939</td>
<td>&quot;MORSE CODE&quot;</td>
<td>EDC: teaches morse code</td>
</tr>
<tr>
<td>993</td>
<td>&quot;STRATEGY GAMES&quot;</td>
<td>EDC, fun strategy games for kids</td>
</tr>
</tbody>
</table>

**TOTAL**

**AVG**

Printed 30 of the 30 records.
We have selected the 30 best Apple and the 30 best IBM public domain programs to show you in our slide show. If a program is available for Apple, this is a comparable IBM program and vice versa. Each public domain software program has a brief description.
SLIDE

1 SLOT MACHINE
Monies for software purchase are never enough. So since we're in Reno, we saw the perfect chance to enhance those software budgets and enjoy doing it...THE SLOT MACHINE!!! seriously, budgets and costs are a very real problem. We're here to help you solve that problem.

We'll begin with some core software offerings in public domain.

2 FRED WRITER
Fred writer is an easy to use word processor with many options.

3 FREDWRITER PROMPTED WRITING
Available with Fredwriter are several prompted writing disks, from writing fables and plays to writing poetry. Disks filled with ideas to use with Fredwriter are also available.

4 PC-STYLE
The program checks a text file for correct grammar and syntax. It also gives a readability level and would be useful in any writing program from about 3rd grade and up.

5 PC-OUTLINE
This program is useful in teaching students how to develop outlines. It provides the structure for formulating an outline, allowing the student to concentrate on the content. It also works with a mouse.

6 PC-FILE
This easy-to-use database provides multiple search capabilities, performs simple math functions, and prints in 80 or 132 columns. It also prints in numeric or alphabetic order and is very fast. It would be a good program to use to introduce the concepts of databases to students. It also works with PC-WRITE, a word processing program by the same author, Jim Button.

7 DATABASE-CAREERS
Career search is a great way to demonstrate the use a data base. After the student selects interests and talents, the computer will generate a list of jobs or careers that might be appropriate for the student...all the way from a parking lot attendant to a nuclear engineer.

8 PC-CALC
This spreadsheet is very similar to the SuperCalc series. It offers all of the options of any basic spreadsheet and has several advanced features. It is also interactive with PC-FILE and PC-WRITE, again by Jim Button.

9 KIDMAIL
This is a telecommunications simulation. Students can leave and receive messages without costly telephone lines.
TYPING TUTOR
This beginning typing program teaches keyboarding skills as well as other keyboard features. The beginning levels teach finger positioning; then it moves through typing words, sentences and phrases.

It also calculates and shows the speed of the typist.

What software is available for young children?

DINO DERBY
In Dino Derby the chil' must hit the correct key to get his dinosaur to advance and try to out run the computer’s dinosaur.

WORD PROCESSING FOR KIDS
This is one of the best IBM programs available for word processing with young children. It displays on screen and prints in 20 columns.

WPK
The menu uses icons for ease of use, and the children we have used this program with love to see their stories and poems in print with this program.

JR WRITER AND FILER
Junior Writer and Junior Filer, on the same disk, are very simple to use. The word processor will print out in expanded type. Junior Filer is an excellent introduction to creating a very simple data base.

AMANDA’S LETTER LOTTO
This is a great program for early childhood. It contains several alphabet games, and will display in alphabetic order or in the order that the child presses the letters.

AMANDA’S LETTER LOTTO
As you can see, the graphics in this program are quite good.

ABC FUN
Another alphabet program that teaches letter skills, this one also plays accompanying music.

EARLY CHILDHOOD PROGRAM
This pre-school fun pack is a selection of very simple games mostly requiring the manipulation of joy stick. These games are ideal for children 5 years and under.

AMY’S FIRST PRIMER
This early childhood program focuses on letter and number recognition. This one is available for the PC or the PCjr.

DINOMAKER
Dinomaker is a program that requires the Logo language to be booted into your machine first. Children can pick from a selection of heads, feet, bodies, and tails to create their own dinosaur and then print it out.
KIDGAMES
This disk contains 5 games for early childhood. This particular one, called Mosaic, requires the child to match pieces of a puzzle to the one displayed.

MATH
This math game requires the child to do some logical thinking...how many added to one will give me four. Dots are available to help with the solution.

BIRTHDAY
This is just a fun computerized birthday card. It plays the happy birthday song. Graphics on the screen show the child’s name and at the end of the card a piece of cake is gone.

Now let’s look at Math programs for all levels.

NUMBER MUNCHERS
In this math game the problem must be answered correctly AND the monster must be avoided.

ZAP MATH
Zap Math—is a multiplication game played by two people. Two dice will roll. Multiply the two numbers correctly to receive the product number of points. You have the choice of continuing or not. If you continue, you may get zapped. You then loose all your points and it is the other person’s turn.

FUNNELS AND BUCKETS
This math program is similar to MathBlaster. It provides drill and practice in the four basic math functions, and keeps score. It also keeps a Hall of Fame listing of the top scores.

TOWERS OF HANOI
Towers of Hanoi...requires logical thinking. The object is to move the rings so they will be in order with the largest being on the bottom. However, the student is not allowed to put a bigger ring on top of a smaller ring.

TAXMAN
Tax Man is a math factoring program. In a list of numbers the student picks a number..the tax man gets every factor of that number that is left in the list. The student tries to get more than the tax man..no mean feat indeed..sort of like the IRS and us.

MANDELBROTH MATH
This program uses advanced calculus formulas to generate unusual art images on the screen.

Although I have no idea how this works, I thought it was interesting and pretty to see!
Here are some of the reading and vocabulary programs we found.

**SLIDE**

33 SPACE RACE
Space Race is a series of five programs built around the Space theme...it includes a hangman game in which the student tries NOT to construct the space shuttle and some other language arts games.

34 HANGMAN
This is one of the best "versions of Hangman I have seen. It includes five levels from easy to advanced.

35 HANGMAN
and is also available in a Spanish version and a French version.

36 VOCABULARY BUILDER
Vocabulary building for older students...the word is flashed on the screen with its meaning. Then after so many words there is a multiple choice quiz on the meanings of the words.

37 FRENCH VERB CONJUGATOR
For beginning French students, this program displays the conjugation of over 100 basic French verbs. There is also a Spanish version of this program.

Now let's look at programs for Science.

38 INSECTS
Insects is a series of 5 science programs on insects from learning and labeling the parts of the insect to questions about them.

39 NUTRITION
This nutrition program allows students to select different foods and then graphs the nutritional value of that food.

40 STARS
I love this astronomy program. The student picks a date; the computer generates a graphic of what the night time sky will look like on that date.

41 STARS
Then it draws in the constellations and rotates the sky graphic as it would look hour by hour.

42 LIGHT FORMATION
This simple program with a bit of animation is an explanation of how energy is released and light is formed.

43 CHEMISTRY
This interactive program introduces the basics of chemistry.

44 CHEMISTRY
It reviews each section at the end of each presentation.

45 MOLECULAR STRUCTURES
This chemistry program show a visual representation of 10 basic molecules and identifies the chemical make-up of each.
We found programs appropriate for Social Studies.

SLIDE

46 MAPS
This is a history simulation of a voyage around the world with Sir Francis Drake. Students must retrieve and read information in order to survive the voyage.

47 FIRE MAPS
Fireground is a map skills game. You are the driver of the fire truck. The address of a fire is given to you. You must get to the fire in the quickest time possible.

48 STATES
States is a whole disk of quizzes about the US. This particular one the student must identify the state by its shape.

Strategy games abound.

49 FRENCH MILITARY GAME
The purpose of this French Military Game is to outflank the black piece by moving the white pieces to surround it.

There are even Music and Art programs in the public domain.

50 MUSIC
This program allows the student to compose his own music and the computer plays it back.

52 MUSIC
Students select the notes and note lengths. The computer composes their music. As it plays a variety of colored bars appear on the screen in time to the music.

53 ART
Students are able to control the cursor and select colors to draw their own designs using the keyboard.

54 FINGER-PAINT
This drawing program uses either the keyboard or a mouse. It is in black and white only, but is a good introduction to drawing with the computer. It also prints the drawing.

55 CAD
This computer assisted design program allows the user to design blueprints, buildings, common objects, almost anything, and then displays them at any angle you choose in 3-D.

We found many teacher utilities also

56 GRADEBOOK
This is one of several excellent gradebook programs. These track student data and average grades. Most gradebooks provide a printout for each student entered.

57 CALENDAR MAKER
This teacher utility will print a calendar for any month after 1980.
SLIDE

58  CALENDAR MAKER
    It will also print a calendar for the entire year.

59  CROSSWORD CREATOR
    This program allows you to enter a list of words with clues, then
    creates a crossword designed to your specifications.

60  CROSSWORD CREATOR
    It also prints out the answer key for the teacher.

CONCLUSION

Public domain software can provide a school or school district with
inexpensive yet quality software. It is economical whether you are a
beginner or a pro!

We demonstrated today that it is possible to match your need for high
quality, low cost software with what New Mexico Technology and Media of the
Council for Exceptional Children members feel is the best available public
domain software for education.

A list of public domain vendors and other computer resources for teachers
follow.
PUBLIC DOMAIN SOFTWARE

MS-DOS PUBLIC DOMAIN VENDORS:

PC-SIG, INC.
1030 E. Duane Avenue, Suite D
Sunnyvale, CA 94086
($6.00 each)

California Freeware
1466 Springline Dr., Dept. M
Palmdale, CA 93550
($2.99 each)

People’s Choice
P.O. Box 171134
Memphis, TN 38187-1134
(3.75 each)

APPLE PUBLIC DOMAIN VENDORS:

Apple Avocation Alliance
211 Cheyenne Avenue
Cheyenne, WY 82100

Big Red Computer Club
423 Norfolk Avenue
Norfolk, Nebraska 68701

CUE SoftSwap
P.O. Box 271704
Concord, CA 94527-1704

North Orange County Computer Club
P.O. Box 3616
Orange, CA 92665-0616

Check the advertising sections of major computer magazines for more vendors. Also check major bulletin board systems (CompuServe, Apple Link, The Source, Genie, etc.) for downloading capabilities. Many bulletin board systems offer public domain software as a part of their service. Check in your local newspapers for user groups in your area.
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<th>TITLE</th>
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<td>Assinov, Isaac</td>
<td>Measuring &amp; Computing</td>
<td>Arco</td>
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<td>Sharon's Beginners Computer Book</td>
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<td>Bailey, David</td>
<td>Measuring 1 Computing</td>
<td>Walker &amp; Co.</td>
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<td>Bearden, Donna</td>
<td>Norby and the Ghost Princess</td>
<td>Walker &amp; Co.</td>
<td>1985</td>
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<td>Berger, Melvin</td>
<td>Norby and the Inlanders</td>
<td>Walker &amp; Co.</td>
<td>1985</td>
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<td>Norby's Other Secret</td>
<td>Walker &amp; Co.</td>
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<td></td>
<td>Those Amazing Electronic Thinking Machines</td>
<td>Franklin Watts Co.</td>
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<td>Bethancourt, Ernesto</td>
<td>Careers in Computers</td>
<td>Messner Co.</td>
<td>1985</td>
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<td>Billings, Charlene</td>
<td>1,2,3 My Computer &amp; Me</td>
<td>Prentice Hall</td>
<td>1983</td>
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<td>Bishop, Ron</td>
<td>Computers In Your Life</td>
<td>Crowell Co.</td>
<td>1991</td>
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<td>Bitter, Gary</td>
<td>Robots in Fact &amp; Fiction</td>
<td>Franklin Watts Co.</td>
<td>1980</td>
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<td>Bolognese, Don</td>
<td>Almost Free Computer Stuff for Kids</td>
<td>Lohgrop, Lee &amp; Shepard</td>
<td>1985</td>
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<td>Byars, Betsy</td>
<td>MicroChip: Small Wonder</td>
<td>Dodd, Mead &amp; Co.</td>
<td>1984</td>
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<td>Cheban, Grace</td>
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<td>Christopher, Matt</td>
<td>Drawing &amp; Painting with Computers</td>
<td>Franklin Watts Co.</td>
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<td>Cooper, Carolyn</td>
<td>The Computer Hut</td>
<td>Viking Press</td>
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<td>Corbett, Scott</td>
<td>Super Computers</td>
<td>Franklin Watts Co.</td>
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<td>O'Keane, Fred</td>
<td>Chip Mitchell</td>
<td>Franklin Watts Co.</td>
<td>1982</td>
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<td>Electronic Games</td>
<td>Franklin Watts Co.</td>
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<td>Small Computers</td>
<td>Franklin Watts Co.</td>
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<td></td>
<td>Working Robots</td>
<td>Elsevier/Nelson Co.</td>
<td>1982</td>
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<td>Dank, Milton</td>
<td>The Computer Game Murder</td>
<td>Delacorte Press</td>
<td>1985</td>
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<tr>
<td>Davies, Helen</td>
<td>Inside the Chip</td>
<td>Usborne Hayes</td>
<td>1993</td>
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<td>DeLeeze, Gene</td>
<td>Computers in the Arts</td>
<td>Franklin Watts Co.</td>
<td>1984</td>
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<td>Dekete, Irene</td>
<td>Mathematics</td>
<td>Orbis Publ.</td>
<td>1984</td>
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<td>Greene, Laura</td>
<td>Computer Pioneers</td>
<td>Franklin Watts Co.</td>
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<td>Hawker, Nigel</td>
<td>Computers in Action</td>
<td>Franklin Watts Co.</td>
<td>1985</td>
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<td>Computers: How They Work</td>
<td>Franklin Watts Co.</td>
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<td>Heilman, Hal</td>
<td>Computer Basics</td>
<td>Prentice Hall</td>
<td>1983</td>
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<td>Hintz, Sandy &amp; Martin</td>
<td>Computers in Our World, Today &amp; Tomorrow</td>
<td>Franklin Watts Co.</td>
<td>1983</td>
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<td>Holland, Penny</td>
<td>Looking at LOGO</td>
<td>Franklin Watts Co.</td>
<td>1984</td>
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<td>Looking at Programming</td>
<td>Franklin Watts Co.</td>
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<td>Hyde, Margaret</td>
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<td>Prentice Hall</td>
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<td>Jacobsen, Karen</td>
<td>Computers</td>
<td>Franklin Watts Co.</td>
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<td>Jespersen, James</td>
<td>Rats, Rats &amp; Robots</td>
<td>Franklin Watts Co.</td>
<td>1984</td>
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<td>Jollands, David</td>
<td>Language &amp; Communication</td>
<td>Franklin Watts Co.</td>
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<td>Keller, Charles</td>
<td>Own on the Range</td>
<td>Franklin Watts Co.</td>
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<td>Computers That Think</td>
<td>Enslow Books</td>
<td>1982</td>
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<td>Rats, Rats &amp; Robots</td>
<td>Athenium</td>
<td>1984</td>
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<td>Kidd, Ronald</td>
<td>The Glitch</td>
<td>Lodestar</td>
<td>1985</td>
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<td>Kleiner, Art</td>
<td>A Look Inside Robots</td>
<td>RainTree Books</td>
<td>1981</td>
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<td>Lampton, Chris</td>
<td>BASIC for Beginners</td>
<td>Franklin Watts Co.</td>
<td>1984</td>
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<td></td>
<td>Computer Languages</td>
<td>Franklin Watts Co.</td>
<td>1984</td>
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<td>PASCAL for Beginners</td>
<td>Franklin Watts Co.</td>
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<td>PILOT for Beginners</td>
<td>Franklin Watts Co.</td>
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<td>The Micro Dictionary</td>
<td>Franklin Watts Co.</td>
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<td>Landsman, Sandy</td>
<td>The Gadget Factor</td>
<td>Antheneum</td>
<td>1984</td>
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<td>Lauber, Pat</td>
<td>Get Ready for Robots</td>
<td>Thomas Y. Crowell</td>
<td>1987</td>
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<td>Lecce, Ellen</td>
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INFORMATION DATA BASES

Title: BRS
Source: Bibliographical Retrieval Services
       1200 Route 7, Latham, NY 12110
Description: Offers over 80 data bases including ERIC, TECC, and Academic American Encyclopedia

Title: CompuServe
Source: H & R Block, 5000 Arlington Center Boulevard,
       P.O. Box 20212, Columbus, OH 43220
Description: Time-sharing service offering features such as electronic mail, a national bulletin board, a general-purpose encyclopedia, and The EDUCATIONAL SOFTWARE SELECTOR (TESS) from EPIE.

Title: DIALOG
Source: DIALOG Information Services, Inc.,
       3460 Hillview Ave., Palo Alto, CA 94304
Description: A comprehensive system offering over 2000 data bases including ERIC and Microcomputer Index.

Title: ERIC (Educational Resources Information System)
Source: Available on DIALOG and BRS
Description: Over a half million educational citations (articles, speeches, research reports, books) with over 6,000 on computers in education.

OTHER GENERAL RESOURCES

Minnesota Educational Computing Consortium (MECC), 3490 Lexington Ave., N., St. Paul, MN., 55126-9097

MicroSIFT (Microcomputer Software and Information for Teachers). Northwest Regional Educational Laboratory, 300 SW 6th Ave., Portland, OR 97204

The PC-SIG Library (4 ed.), (March 1987), PC-SIG, Inc. 1030 E. Duran Avenue, Suite D, Sunnyvale, CA 94086
PERIODICALS

Classroom Computer Learning. Peter Li, Inc., 2451 East River Rd., Dayton, OH  45439

Creative Computing. 39 East Hanover Ave., Morristown, NJ  07950

Electronic Learning. Scholastic, Inc. 730 Broadway, NY, NY  10003

Journal Of Special Education Technology Peabody College Of Vanderbilt University, P.O. Box 328, Nashville, TN  37203


Media And Methods. American Society Of Educators, 1511 Walnut St., Philadelphia, PA  19102

Personal Computing. Hayden Publishing Co. Inc., P.O. Box 2942, Boulder, Co.  80322

T.H.E. Journal (Technical Horizons in Education). Information Synergy, Inc. 2922 S. Daimler St., Santa Ana, CA  92705


BOOKS


