A Teacher's Dream Come True—A Simple Program for Writing Tests

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This program was written for an Apple computer with at least 48K of memory and the ability to print lower-case letters. It can be used on the Apple IIe, and is also compatible with the Franklin computer.

The program stores multiple-choice and essay-type questions on 5¼ disks. Each disk can hold up to 275 questions which are stored under topics of your choice such as ecology, genetics, or biochemistry. Once recorded, the questions need never be typed again, and the program will tell you when the disk is full. You may replace old questions with new ones to keep your files up to date. A printout of all questions on specific topics serves as a printed file or "Master List" from which you choose questions when making out a test.

The program enables you to produce any number of different tests and also different forms of the same test. When you print several different forms of the same test, each form will have its own answer key. The questions on each form will be in the same order, but the alternate answers for each question will be in a different order for each form. This feature is really handy in overcrowded classrooms where cheating can be a problem. You can make as many student copies of these different tests and forms as you need using offset, Xerox, or other copiers.

Essay questions are always printed as a separate test. If you want essay questions on the same page with your multiple-choice questions, you must leave sufficient space at the bottom of the test. With some cut-and-paste techniques you can add the essay questions when the student copies are to be made.

Once you have copied the program, you can start storing questions on your data-storage disk. The questions on each disk are stored sequentially under topics chosen by you. Question 5, for example, may be under the topic of viruses while questions 6 and 7 might be stored under the topic of bacteria. When you have completed typing in your questions, you can get printouts of all questions stored under the different topics. These printouts serve as your master list that you use when choosing questions for tests.

Let's say that you want to give a short quiz on bacteria. You would refer to your master list or ask for a printout of all questions under the topic of bacteria. You would then use this list to choose the questions you want. You might choose questions 3, 46, 146, etc. When you request a test, the program will ask for the numbers of these selected questions. The quiz will then be printed out, along with an answer sheet.

You can also print as many forms of the same quiz as you need. This means you can give five or more forms of the same test to a class of 30 students and not have to worry too much about old shifty-eyes in the back row. It's just as easy to print five forms as it is one.

Copying the Program

Before you start copying the program, make sure you refer to your computer manual for instructions on how to initialize your disk to prepare it to receive the program, and how to save the program once you've typed it into the computer.

Copying commands 10 through 2330 is a real chore if you have never programmed before, because every command must be accurately typed. However, when you run the program, you will be directed by the computer to the specific commands that need to be corrected—so mistakes need not be disastrous. Fortunately, copying the program is a one-time job, because once the program disk is completed, numerous backup copies can be made. If you feel generous, you may give copies to physics, chemistry, and Earth science teachers. It is also a good idea to tape the protection notch on the program disk so that it is never used to store questions. Storing questions is a job for your data-storage disk.

Running the Program

Once you have completed copying the program on an initialized disk, you're ready to run

the program. Remember that if you have protected the disk by taping over the notch you cannot harm it, so relax. Place the program disk in the drive and turn on the computer. If the computer is already on, put the disk into the drive and type PR#6. This will boot up the disk, that is it will put the program information into the computer. The following display will appear:

INSERT DATA DISK

PRESS RETURN

The program is now in the computer's memory. You can now remove the program disk and replace it with a new initialized disk. This disk will become your first data-storage disk. If you have a two-drive system, don't put the data-storage disk in the second drive. Always remove the program disk and replace it with the data-storage disk.

In learning how to use the program, you are bound to make mistakes. Don't get upset. If you become hopelessly confused in writing out a question, for example, just press the reset button. You will lose what is in the memory, but you will not lose what has been recorded on the data-storage disk. When you press the reset key, you will have to replace the data-storage disk with the program disk and boot the program with PR#6 to start over.

Press Return (The return key or carriage return will be abbreviated as ⟨cr⟩.)

The screen will now display the menu.

Test Program Menu
Function
⟨A⟩ Format Data Disk
⟨B⟩ Store Test Item
⟨C⟩ Replace Test Item
⟨D⟩ Inventory Test Items
⟨E⟩ Print Test
⟨F⟩ Exit Program
SELECT FUNCTION (?)

You are now ready to use the various functions of the program.

In ordinary use these functions can be used in any order. Each of these functions will now be discussed.

⟨A⟩ Format Data Disk

Press A (If you are using an Apple IIe, keep the cap-lock key engaged when using this program. Capital letters may be typed by pressing the escape key and the letter.)
The screen will now read:

Insert Initialized Disk
for Formatting
Press Return
Press ⟨Esc⟩ to return to menu

You will use the format command only when you want to start a new data storage disk. The instructions remind you to insert a new initialized disk in case you have forgotten. It also informs you that if you've changed your mind about formatting and want to return to the Test Program Menu, you just press the escape (Esc) key.

Press Return.

The screen will now read:

Disk Title:

Next to the disk title you might type Ecology, Unit 1, or Chapter 5. We have chosen Microbiology, a unit from *Modern Biology*, 1983 edition. As soon as you type in the title and ⟨cr⟩, Input Topics will appear. The screen will now look like this:

Disk Title: Microbiology
Input Topics
⟨1⟩

Next, type in the input topics. Think over the topics carefully. Remember that each data disk will hold about 275 questions, so the more topics you have, the fewer the number of questions that can be stored on the disk under each topic. Because of program limitations, once you start filing questions you will not be able to change or add topics. Once you decide on the topics, begin to type them in. After you type in each

topic, press return. When you type in topic 9 and return, all of the topics will be recorded on the data-storage disk. If you have fewer than nine topics, you type in the word END (in capital letters) under the last topic you typed. The word END signals the computer to record all topics on the data-storage disk. The formatting procedure is then complete. An example is seen below:

Disk Title: Microbiology
Input Topics
⟨1⟩ Viruses
⟨2⟩ Bacteria
⟨3⟩ Infectious Disease
⟨4⟩ Protozoa
⟨5⟩ Fungi
⟨6⟩ Algae
⟨7⟩ END
Select Topic?

After you have typed END and pressed the return, the computer will return you to the Test Program Menu.

⟨B⟩ Store Test Item

Press B

The screen will now read:

Your next question will be No. 1
Microbiology
⟨1⟩ Viruses
⟨2⟩ Bacteria
''
''
⟨6⟩ Algae

The number shown in the top line includes both the multiple-choice and essay questions you have on the disk. On a new disk this number will be No. 1.

Press 2 (or some other selection)

The following display will appear:

Bacteria Question
Type of Question
⟨1⟩ Multiple-Choice Question
⟨2⟩ Essay Question
Select Question Type?

Press 1 (Multiple-Choice Question)

The following display will appear: (The question is given as an example and will appear this way if you have a 40 column.)

Type Question Below

Which structure in bacteria is most closely associated with ⟨cr⟩ survival in unfavorable conditions? ⟨cr⟩
(a) spores⟨cr⟩
(b) chromosomes⟨cr⟩
(c) all answers are correct ⟨cr⟩
(d) nucleus⟨cr⟩
(e) plasmids⟨cr⟩
END ⟨cr⟩

Before typing in your question, refer to the following rules:

*To obtain one line of print on a 40-column screen, you have to type about one-and-a-half screen lines before doing a carriage return. The example question above will appear as two lines on your printed test. When you reach one-and-a-half screen lines and you are in the middle of a sentence, hit the carriage return and continue the sentence.

*Answers for multiple-choice questions are limited to one line of print.

*When typing the multiple-choice items, ALWAYS put the correct answer as (a). Always use lower case letters for the choices and always enclose them in parentheses. The program will not work properly without them.

*Multiple-choice questions may contain two, three, four, or five choices. After you complete your answers, type END in capital letters beneath the last answer and hit the carriage return. The question will then be recorded on the data-storage disk.

*If you change your mind about a question before it is recorded, press reset and start over by replacing the data-storage disk with the program.

*No more than 500 characters, including answers, and no more than 20 lines can be used for any multiple-choice question. This limitation is usually of no importance, but if more lines or characters are needed you can alter the programming to suit your needs.

*If an error is encountered in the line being typed, back up and correct it. If an error is found on a line previously typed, complete the rest of the question. After you type END ⟨cr⟩, the question will appear on the screen and each line will be numbered. Under the question, you will be asked the following:

Is the question correct? Y or N

If you have an error, type N and you will be asked:

Type line number of incorrect line. __

Type in the line number and ⟨cr⟩. You will then be shown the specific line with the mistake and you will be asked to type in the corrected line. As soon as you type in the corrected line and ⟨cr⟩, the corrected question will appear. You will again be asked if the question is correct. If it is, press Y. The question is then permanently stored on your data-storage disk and you will be returned to the Test Program Menu. Continue to store test questions on your data-storage disk. If you wish to replace a question after it is stored, you use the next function.

⟨C⟩ Replace Test Item

Press C

Selection ⟨C⟩ allows you to write over an existing question on the data-storage disk, that is replace it with another new question. If you have a spelling mistake in a question, you will have to use this command and rewrite the entire question. You will not be able to delete a question with this program. When you select ⟨C⟩, the following question will appear on the screen:

What is the number of the question to be replaced?

After you fill in the number, you will be shown the topic list and asked which topic the question is stored under. Next you will be asked whether the question is multiple-choice or essay. You will then be asked to write in the new version of the question or the substitute question. When you finish the question, type END on a separate line. You will then repeat the procedure for correcting any errors. When complete, you will be returned to the menu. When you want to know how many questions you have stored under any topic, take an inventory.

⟨D⟩ Inventory Test Items

Press D

A display similar to this one will appear on your screen:

INVENTORY OF MICROBIOLOGY

TOPIC	MULT	ESSAY
Viruses	13	2
Bacteria	35	10
Infectious Disease	15	0
Protozoa	0	2
Algae	35	3
TOTAL NUMBER OF ITEMS	115	

PRESS RETURN

The inventory lists the number of multiple-choice questions and essay questions in each topic area. Under the topic of bacteria you have 35 multiple-choice questions and 10 essay questions. You also have a total number of 115 items, both multiple-choice and essay, stored on the disk. You will not be able to view these questions on the screen. When the carriage return is executed, you will be asked the question, "Do you want a printout of the test items? Y/N" If you recently recorded a number of questions and want an up-to-date master list, you would select Y, yes. Turn on your printer and adjust the paper to the top of the page.

You are then shown the Topics List and asked to make a selection. You are then asked to choose between multiple-choice or essay. If you choose multiple-choice and press 1, you will get an immediate printout of all multiple-choice questions under that topic. The

printout should become part of your master list folder. Remember that the correct answers are all under (a). The computer will then ask again if you want a printout of topic questions. If you answer no, you will be returned to the Test Program Menu.

⟨E⟩ Print Test

Press E

The Print Test assembles selected test items and prints them in a test format. Turn on the printer. You will be asked the following questions on the screen: (each question is referred to by letter)

a =⟩ How many test questions do you want ⟨?⟩
b =⟩ Multiple-choice or essay? ⟨M⟩ or ⟨E⟩
c =⟩ How many questions per page ⟨?⟩
d =⟩ How many forms of the test ⟨?⟩
e =⟩ Starting number for questions ⟨?⟩
f =⟩ How many lines between questions ⟨?⟩
g =⟩ Type test heading below

h =⟩ Short quiz on bacteria. ⟨cr⟩

a) Respond with the number of questions you want printed.

b) Indicate whether selected questions are multiple-choice or essay. You must deal with only one type at a time. Once you've mastered how to write and record multiple-choice questions, essay questions will be no problem.

c) The number of questions per page will depend on the type of questions used and the number of lines left between each question.

d) Each form will be labeled Form 1, Form 2, etc., and each answer-sheet key will have a corresponding level.

e) The starting number of the first question may be selected. This is useful when putting together a composite test of multiple-choice and essay questions, or a test using questions from different disks.

f) Space between essay questions may be left for students to do their work. This will also affect the number of questions that can be printed on a page. Multiple-choice questions can be separated by one space.

g) Only one line at the beginning of the test may be used to type

a heading. See (h) above for an example.

After typing in the heading, you will be shown the following: Item No. 1 Question No. ⟨?⟩

Fill in the question numbers from your master list. Each time you choose the number of a question, the next item number will appear. When you select your last question, the tests will be automatically be printed. There may be a slight delay between some questions that are stored on various sections of the disk. When the printing is finished, you will be returned to the menu. You should always use the last command when you are finished.

⟨F⟩ Exit Program

Press F

Using this function does more than exit the program. It prevents any enterprising students from gaining access to test questions that might be left in memory.

This program has had extensive use in the classroom and we have found it very useful. We hope you find it useful too. A printout of the program follows.

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]LIST

10   HOME : VTAB 8: PRINT "*********************************************": VTAB 1
     2: HTAB 12: PRINT "INSERT DATA DISK": VTAB 16: PRINT "***************
     *************************": VTAB 22: HTAB 14: PRINT "PRESS RETURN": GET
     U$
20   DIM A$(20),CO$(25),Q$(100,20),T(300),TYPIC(9,3),IV(300),K$(100),P(100)

30   HOME
40 D$ =  CHR$ (4)
50   HOME : VTAB 3: HTAB 8: PRINT "TEST PROGRAM MENU"
60   VTAB 6: HTAB 5: PRINT "FUNCTION"
70   VTAB 8: HTAB 7: PRINT "<A> FORMAT DATA DISK"
80   VTAB 10: HTAB 7: PRINT "<B> STORE TEST ITEM"
90   VTAB 12: HTAB 7: PRINT "<C> REPLACE TEST ITEM"
100  VTAB 14: HTAB 7: PRINT "<D> INVENTORY TEST ITEMS"
110  VTAB 16: HTAB 7: PRINT "<E> PRINT TEST"
120  VTAB 18: HTAB 7: PRINT "<F> EXIT PROGRAM"
130  VTAB 22: HTAB 5: PRINT "SELECT FUNCTION  <?>"
140  VTAB 22: HTAB 23: GET S$
150  PRINT D$
160  HOME : IF S$ < "A" OR S$ > "F" THEN 50
170 S =  ASC (S$) - 64: ON S GOTO 180,450,490,520,1050,2330: GOTO 50
180  HOME : VTAB 6: PRINT "*********************************************"
190  VTAB 8: HTAB 11: PRINT "INSERT INITIALIZED"
200  VTAB 10: HTAB 11: PRINT "DISK FOR FORMATTING"
210  VTAB 12: HTAB 14: PRINT "PRESS RETURN"
220  VTAB 14: PRINT "*********************************************"
230  VTAB 20: HTAB 14: PRINT "PRESS <ESC>"
240  VTAB 22: HTAB 11: PRINT "TO RETURN TO MENU"
250  GET S$: IF S$ =  CHR$ (13) THEN 280
260  IF S$ =  CHR$ (27) THEN 30
270  GOTO 180
280  HOME : VTAB 2: HTAB 5: INPUT "DISK TITLE  ";A$(0)
290  VTAB 5: HTAB 5: PRINT "INPUT TOPICS"
300  FOR K = 1 TO 9: PRINT "<"K">  ";: INPUT "";A$(K)
310  IF A$(K) = "END" THEN 340
320  NEXT K
330 A$(K) = "END"
340  PRINT D$"OPEN TOPIC FILE,L40"
350  FOR I = 0 TO K
360  PRINT D$"WRITE TOPIC FILE,R";I
370  PRINT A$(I)
380  NEXT I
390  PRINT D$"CLOSE TOPIC FILE"
400  PRINT D$"OPEN TOPIC2,L10"
410  PRINT D$"WRITE TOPIC2,R";0
420  PRINT 0
430  PRINT D$"CLOSE TOPIC2"
440  GOTO 30
450  GOSUB 1570
460  PRINT D$"OPEN TOPIC2,L10": PRINT D$"READ TOPIC2,R";0: INPUT N: PRINT
     D$"CLOSE TOPIC2":NR = N + 1
470  HOME : VTAB 2: HTAB 5: PRINT "YOUR NEXT QUESTION WILL BE NO. ";N + 1:
      FOR I = 1 TO 1000:WP = 3: NEXT I: VTAB 7: HTAB 5: PRINT CO$(0): PRINT
     : PRINT : GOSUB 1610
480  GOTO 50
490  PRINT D$"OPEN TOPIC2,L10": PRINT D$"READ TOPIC2,R";0: INPUT N: PRINT
     D$"CLOSE TOPIC2"
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