PictureWriter™

by George Brackett. PictureWriter — it's magic. Create any shape, color or pattern, instantly. Choose from a library of finished art — edit and even combine with music. Save and replay your own creations. A step-by-step introduction to computer programming and editing for children.
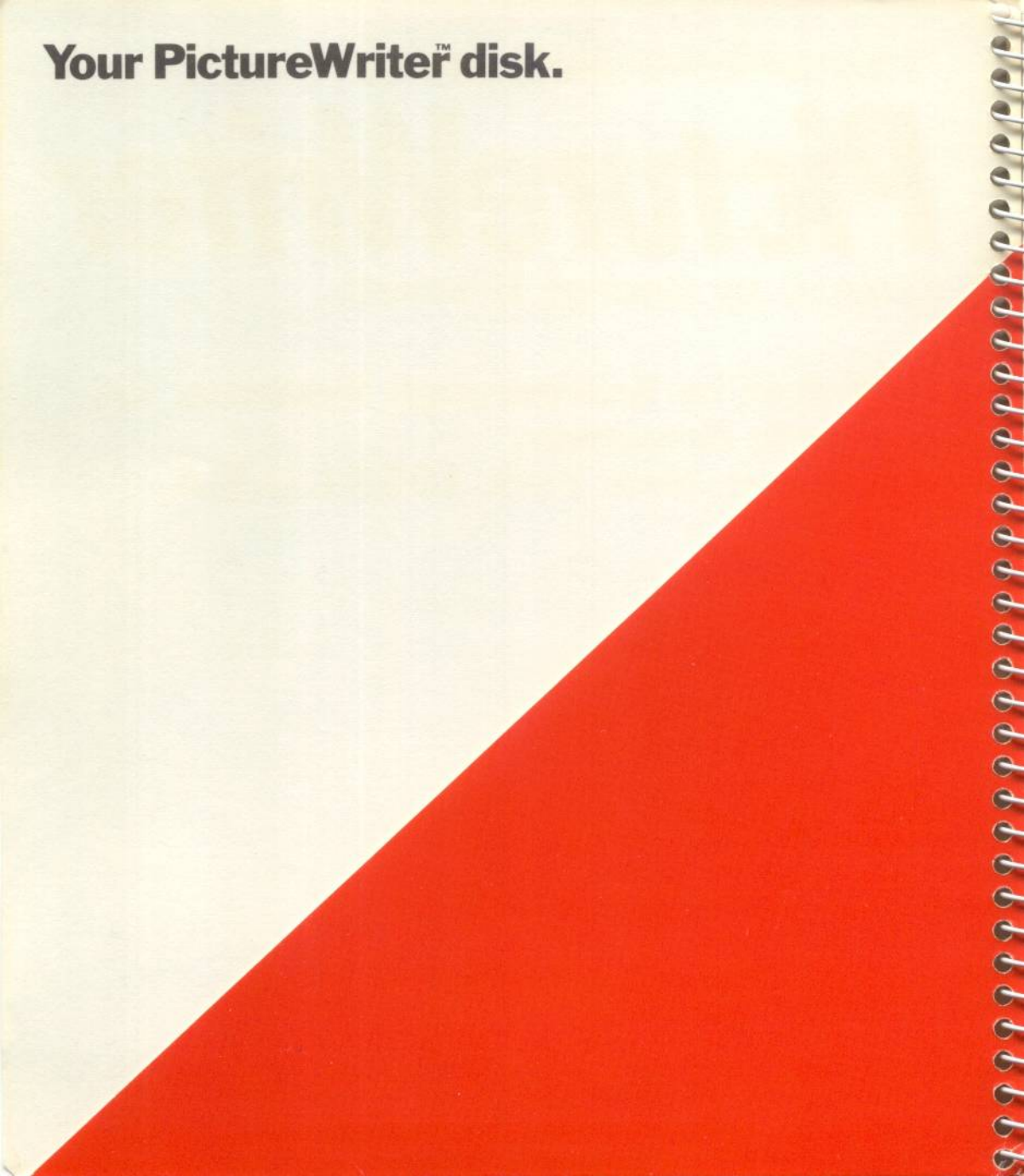
For Ages 5 10 15

Apple II Plus/IIe, 64K, Joystick.

Scarborough.

Your PictureWriter™ disk.

Copyright Notice.

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I. Introducing PictureWriter.

PictureWriter is . . .

PictureWriter is for drawing pictures.

Using your computer and a joystick, you can draw lines and shapes, fill areas with glowing colors, and even hear your picture set to music. You can create your own picture gallery on a disk, have pictures redrawn like magic on the screen, and even print them on paper.

PictureWriter is for playing with pictures.

PictureWriter includes a coloring book, with pictures you can color as often as you like, in as many ways as you like. You can also draw shapes that play tunes, and play games with mazes, races, and squiggles.

PictureWriter is for learning by drawing.

The more you draw, the better you'll draw, and PictureWriter makes drawing fun. But the best part is this: you can change any part of a picture, any time. Add a line, erase a shape, change a color — PictureWriter lets you do with pictures what word processors do with words. You can experiment as much as you like, until you discover how to draw it just right.

But PictureWriter helps you learn more than drawing. When you draw with PictureWriter, each step you take is stored in your computer's memory, just like the steps of a computer program. As you add to your picture or edit it, you are actually programming in PictureWriter's own simple picture language. (In fact, you can "run" your own program—see the picture redrawn from scratch—at any time.) Drawing with PictureWriter is still a long way from programming in LOGO or Pascal. But the experiences are similar enough that learning to do one will help you learn to do the other.

PictureWriter is for other things too.

(Some of them YOU will invent.) But to find out more about PictureWriter, you need to start PictureWriting. So sit down at your computer and let's get started!

Getting Started.

To use PictureWriter, you will need:

An Apple II, II+, or IIe computer with at least 64k RAM
A disk drive and controller
A joystick
A monitor or TV (color is highly recommended)
(Optional) A graphic printer and Grappler™ interface card connected to slot #1

Make sure your system is set up and ready to go. Then, with the computer's power turned off, insert the PictureWriter disk into the disk drive — drive 1 if you have two drives. (Hold the disk with the label on top, and insert the disk edge with the semi-circular cutouts first.) Close the drive door, and turn on the computer.

The disk drive's red light will come on, and within a few seconds the screen will display the legend "Scarborough presents . . ." while PictureWriter finishes loading itself into the computer. When that's done, the computer will display the PictureWriter title screen with the question "Would you like a tutorial? Y/N" at the bottom.

The PictureWriter Tutorial

If you enjoy plunging in and figuring things out by yourself, press the N key. The screen will clear, and you can start drawing immediately. (See the next section for a description of how PictureWriter works.)

If you'd like a little help getting started, though, take advantage of PictureWriter's built-in tutorial. First you will see a short demonstration showing how PictureWriter's basic commands were used to make the title screen. Then comes a step-by-step self-teaching guide. The tutorial gives you lots of chances to try things out. When you've completed the tutorial, you'll be ready to draw, edit and store your own pictures using all of PictureWriter's features.

Initializing a Picture Storage Disk

Although you can store your first few pictures on the PictureWriter disk, you will quickly need other disks for picture storage. As soon as you have finished with the tutorial, it's a good idea to "initialize" one or more standard Apple DOS 3.3 disks for picture storage. (Follow the instructions in your disk operating system manual.) Then place a write-protect tab on your PictureWriter disk. Putting the tab on protects the PictureWriter program from accidental damage. (If you want to use the tutorial again, you must remove the tab on the PictureWriter disk first. Then replace the tab after going through the tutorial.)

To begin drawing, use the PictureWriter disk to load the PictureWriter program, and then replace it with one of your picture storage disks.

II. How PictureWriter Works.

Telling PictureWriter what to do.

PictureWriter is a tool for drawing — it does what YOU tell it to do. Telling PictureWriter what to do is very simple. You just point with the joystick, and then press a button or a key.

The Joystick.

The joystick controls the direction of the cursor, a pair of crosses on the screen showing where PictureWriter will draw next. Moving the joystick moves the cursor tip (the small cross of dots) around the cursor base (the large cross.)

Hints: Find a way to hold the joystick so that the cursor tip moves the same way the joystick does. For example, if you move the joystick left, the cursor tip should move left, and so on. You will find it much easier to draw if the joystick stays where it is when you let go of it. If the joystick always goes back to the center when you release it, the joystick manual should tell you how to adjust the joystick so that it is not self-centering.
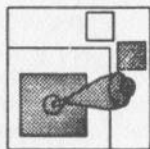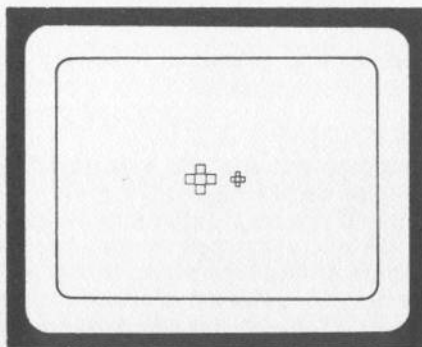
The Game Buttons.

The two "game buttons" on the joystick box are also very important. When you are drawing, pressing button 0 tells PictureWriter to draw a line from the cursor's base to its tip. Pressing button 1 tells PictureWriter to skip the cursor ahead, so that its base is located where the tip used to be. Holding either button down makes it repeat the action, drawing one line after another, or skipping around the screen.

Hints: Pressing button 0 means "do it," while pressing button 1 means "skip." The buttons are also used this way in editing a picture: you press button 0 to do an editing step, or button 1 to skip to the next one. (See the Editing section for details.)

The Keyboard.

Pressing certain keys on the keyboard is the last way to tell PictureWriter to do something. The right side of the PictureWriter screen lists the keys used in drawing, editing, and storing pictures. In addition, PictureWriter uses certain other keys for special purposes. The next few sections describe how all these keys work.

Drawing Pictures.

Put a line here, a shape there, color this part pink, that one green — PictureWriting is a step-by-step process, just like other kinds of drawing. Every time you add something to your picture, PictureWriter stores the drawing step in the computer's memory. (This makes it possible to edit your picture later, or to store it on a disk.) PictureWriter prints the number of drawing steps in your picture in the upper right corner of the screen.

Here are the keys you can use, along with the joystick and game buttons, to make your drawings step by step. These keys are listed on the PictureWriter screen, each with a little picture symbol to help you remember what it does.

Z for Zap.

Press Z to *Zap* your old picture (if any) and start a new one on a clear screen. Because you can't get your old drawing back (unless you have stored it on a disk), PictureWriter asks "Are you sure?" before erasing your picture. If you answer N, nothing will happen — you can go back to drawing. If you answer Y, PictureWriter will ask if you want the same background color — either black or white. If you answer N the screen will clear to the opposite background color

1 - 8 for *Choosing Colors.*

Press a number key from 1 to 8 to choose a line color for drawing. These keys are also used to choose a color for coloring shapes (see the C for *Color* section).

Hints: Because of the way the computer makes color appear on the screen, colors 1 through 4 often interfere with colors 5 through 8. This happens when a color from the first group is placed next to or on top of a color from the second group. For example, if you draw a red line (color 6) and then cross it with a purple line (color 1), the red line will turn green near the crossing. Similar things happen if you draw a purple line across a red-colored shape. You can keep interference from spoiling things by placing colors from the same group next to or on top of each other.

C for *Color.*

Draw a shape, place the cursor tip inside it, and press C to *Color* it in. PictureWriter will ask you to choose two colors to mix, and show you the mixed color on the paintbrush. To color a solid color, enter that color's number twice. If you like the color, press Y and PictureWriter will color the shape. If you don't like the color, press N and choose another mixture.

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Hints: You can draw the shape outline in any color, but don't leave any gaps! The color will leak out and fill the area around the shape too. When you color shapes that are side-by-side, you can avoid interference by choosing colors from the same color group. For example, choose solid red for one shape, blue for another, and a mixture of red and blue for a third. Another way is to mix colors using one color from each group. For example, you can color pink (1 and 6 mixed) next to aqua (2 and 5 mixed). You can't re-color a colored area without editing. (See the Editing section for details). PictureWriter only colors areas of the current background color, either white or black

F for *Frame*.

Press F to draw a rectangular *Frame* with corners at the cursor ends. PictureWriter draws the frame in the line color you have chosen.

Hints: PictureWriter always draws frames with sides parallel to the drawing screen edges. If you want to draw a frame at an angle, you can do it with four lines.

O for *Oval*.

Press O to draw an *Oval* in the line color you have chosen. PictureWriter draws the oval inside an imaginary frame with corners at the cursor ends.

Hints: Ovals can be short and fat, or tall and thin, just like the imaginary frames they're drawn inside. If the imaginary frame is a square, the oval will be a circle.

< and > for *Cursor Size*.

Press the key labeled < (the less than symbol) to make the distance between the cursor ends smaller. (You do not need to use the SHIFT key.) Press the key labeled > (the "larger than" symbol) to make it larger. The cursor size becomes half as large every time you press <, until the biggest line you can draw is two screen dots long. The cursor size doubles every time you press >, until you can draw a line across the whole screen.

Hints: Use the smallest cursor sizes for fine work or very smooth curves, middle sizes for most of your drawing, and the biggest sizes only when you must draw a very long straight line, a big frame, or a big oval. The cursor tip gets hard to control when the cursor reaches across the entire screen. If you need to position the cursor very exactly, switch to a very small cursor size until the cursor base is where you want it.

Editing Pictures.

These PictureWriter commands make it easy to change one or more drawing steps in the computer's memory, and to see the result on the screen. Using them, you can experiment as much as you like until you have a picture that looks right to you.

B for *Back Up*.

Press B to *Back Up*, undoing the last drawing step. PictureWriter erases the step on the screen by drawing over lines, frames, and ovals in the background color, and by putting a little box of background color on top of a colored-in area.

Hints: You can back up as many steps as you like — just keep pressing B. Backing up can leave your picture looking messy, because PictureWriter sometimes doesn't erase things on the screen as neatly as it does in memory. If that happens, use the Redraw command described next.

R for *Redraw*.

Press R to *Redraw* your picture. PictureWriter clears the screen and draws the picture over, re-doing each drawing step in order.

Hints: If you have recently gotten a background picture to draw on from the disk, PictureWriter will ask you if you want the background erased before redrawing. See the Storing Pictures section for details.

E for *Edit*.

To change one part of your picture without disturbing any other parts, press E for *Edit*. PictureWriter will ask for the step where you want to begin editing. After you enter the step number and press RETURN, PictureWriter places the cursor on that drawing step. Then it displays the different editing steps you can take at the bottom of the screen. Press game button 1 to skip along to the editing step you want next, then press button 0 to do it. The editing steps are:

Move>

Moves the cursor forward to the next drawing step in your picture.

<Move
Moves the cursor back to the previous drawing step in your picture.

Delete.

Deletes or erases the drawing step shown by the cursor.

Change.

Deletes the drawing step shown by the cursor, and then lets you fill in a different drawing step.

Add.

Lets you add a drawing step in front of the step shown by the cursor.

Exit.

Asks if you wish to redraw your edited picture, and then leaves the editing process.

Hints: Because you can do many different things while editing, editing takes a little getting used to. The tutorial will help you get started. Afterwards, draw a few very simple things — a triangle and a colored square, say — and practice a bit. Try changing, deleting, and adding lines, colors, frames or ovals. You will soon learn to make editing changes quickly and easily.

Storing Pictures.

PictureWriter stores all the steps of a picture in the computer's memory, and displays the picture itself on the screen. If you turn the computer off, you will erase both the picture process — the drawing steps — and the picture screen. But with these PictureWriter commands, you can store any picture's process or screen on a disk, creating a gallery of pictures to enjoy and work on at a later time. (You can also print your picture if you have a graphic printer.)

S for Save.

Press S to *Save* the picture displayed on the screen by storing it on the picture storage disk you have placed in the disk drive. (See below for how to save a picture on paper.) PictureWriter will quickly check the storage space available on the disk, and then ask whether you wish to save the picture process or screen. Storing a picture as a screen takes much more storage space. If enough space is available, PictureWriter will ask you to type in a short name for the picture, and then it will store the picture on the disk. PictureWriter automatically adds .SCRN to the name of any picture stored as a screen.

Printing: If you have a graphic printer and a Grappler™ interface card in slot 1, you can print a screen on paper (in color too, with some printers!) Make sure your printer is properly connected and turn it on before starting your drawing session. To print a picture, tell PictureWriter you want to save a screen, and then press P to answer the question Save to Disk or Printer? D/P PictureWriter will place the name you give your picture at the bottom of the screen, and then print the result.

Hints: When you save a picture on disk, it will replace any picture with the same name already on the disk. That means you should almost always use a new name when you save a picture. The only time you should use an old name is when you are working on a picture and want to save only the new, improved version. If you want to keep different versions of a picture, names with numbers can help: TRAIN1, TRAIN2, and TRAIN3, for example. Picture names must begin with a letter, and cannot include commas. (Don't worry — PictureWriter remembers these rules so you don't have to.) It's a good idea to save your picture several times as you are drawing it, just in case of power failures or other accidents. Even if you lose the last few drawing or editing steps, you will still have a good place to start re-drawing.

G for Get.

Press G to *Get* a picture stored on the disk. PictureWriter will display a picture menu listing the pictures stored on the disk you have placed in the disk drive. Use the arrow keys to move the white block cursor until it is opposite the picture you want. (If the picture list is too long to fit on the screen, the picture you want may not show. Just keep pressing the arrow key until it does.) Press RETURN, and PictureWriter will load the picture into the computer's memory and display it on the screen.

Hints: You can use G for *Get* to do more than look at pictures. If you get a picture stored as a process, you can change it — editing steps and adding steps — and then save the result with a new picture name. If you get a picture stored as a screen, you can use that picture as a background for drawing another picture. For example, the picture MUSIC.SCRN gives you a musical staff you can "draw tunes" on top of. Because you may not want to erase the background when you redraw (or replay) your drawing, PictureWriter will ask you whether you want the background erased before redrawing. You can save both the background and the drawing on top as a screen. Saving the process, though, only saves the drawing steps you made, not the background.

D for *Delete.*

Press D to *Delete* or erase a picture stored on disk. PictureWriter will display a picture menu like the one used to get a picture. Select the picture you want to delete by moving the cursor and pressing RETURN. To prevent accidents, PictureWriter will then ask ARE YOU SURE? Y/N. If you press Y, PictureWriter will delete the picture from the disk — you will not be able to get it back. If you press N, PictureWriter will return you to the drawing screen without deleting the picture.

Hints: Deleting is useful for good housekeeping. Since you may not be able to save a new picture if the disk is too full, it's a good idea to delete any pictures you don't want anymore.

Special Modes and Keys.

PictureWriter has two special modes — ways of working rather than specific commands. These are:

P for *Pin*.

Press P to *Pin* the cursor so that it does not skip automatically after drawing a line, frame, or oval. To un-pin the cursor, press P again.

Hints: Use Pin mode to make lines or shapes starting from the same point, such as rays from a star or several frames making the panes of a window.

M for *Music*.

Press M to play a note with each drawing step. Press M again to turn off Music mode.

Hints: PictureWriter plays a note for each picture step except for lines frames, or ovals drawn in the background color. The higher the step is on the screen, the higher the note. The picture MUSIC.SCRN is a musical staff showing where each note lies on the screen. (Sharps and flats lie midway between pure tones.) In Music mode, pressing R will Redraw your picture and replay its Music too.

In addition, there are a few special keys which PictureWriter uses in much the same way as other programs do. These are:

RETURN.

Press RETURN to show you're done after typing in a picture name or the step number where you want to begin editing. Pressing RETURN also tells PictureWriter to Get or Delete a particular picture in the picture menu.

ESC.

Press ESC to "ESCape." This key lets you decide NOT to Color, Get, Save, or Delete after all.

◀ and ▶.

Press the arrow keys to move the typing cursor (a white block) left, right, down, or up. Use these keys when typing a name, or choosing a picture from a menu. Because the Apple II and II + do not have up-arrow and down-arrow keys, the left- and right-arrow keys move the cursor up and down the picture menu.

Y and N.

Press these keys to answer a question with Yes or No. (See SHIFT below.)

REPT.

To draw frames or ovals one after another, press REPT on the Apple II or II+ while holding down the F or O key. There is no REPT key on the Apple IIe: you need only hold down the F or O key to repeat it.

SHIFT.

It's not necessary to use SHIFT with any PictureWriter command: for example, you don't have to use the SHIFT key to answer "Y" or to make the cursor larger or smaller.

Limits.

There's a limit to everything, and PictureWriter has a few of its own:

Drawing Steps.

PictureWriter can store up to 450 drawing steps in memory. You can draw more than this number, but the extra steps will not be stored in memory or saved-to-disk. To remind you of this limit, PictureWriter makes a warning sound and pins the cursor for every step drawn after 450.

Disk Space.

You can store up to sixty four pictures on an empty picture storage disk, depending on the space each picture takes. Pictures stored as screens take the most space: you can only store 14 of them before the disk is full. Pictures stored in process form take up much less space. Still, the more steps in a picture, the more space it takes. For example, you can store sixty four 200-step pictures, but only forty-one 450-step pictures.

Picture Names.

Picture names can have only 15 characters, including letters, numbers, and spaces. Names must begin with a letter, and they cannot include commas. PictureWriter automatically capitalizes the letters in picture names, to avoid confusion in the picture menu (which can only display capital letters).

Trouble Spots.

PictureWriter can protect itself and your drawings from most accidents. Still, there are a few things you should be careful of:

Disk Care.

Handle your PictureWriter and picture storage disks with care. Do not bend them or write on them, and keep them away from heat and magnets. Keep your disks in a protective sleeve when they are not in a disk drive, and do not touch the disk surface.

Disk Drive Use.

Whenever the red light on the disk drive is on, the computer is either getting information from the disk or saving information on the disk. DO NOT DO ANYTHING to interrupt, or permanent damage to PictureWriter or your pictures can result. Especially, do not open or close the drive door, try to insert or remove a disk, or press the RESET key.

The RESET Key.

Pressing RESET (or CTRL-RESET on newer machines) will make PictureWriter clear the screen and redraw your picture. Even though this usually does no harm, it is not recommended.

If Something Does Go Wrong.

No matter how careful you are, things can still go wrong — the disk drive door might be open by mistake, say, when you press G for *Get.* Don't worry — PictureWriter can recover with your help. In most cases, PictureWriter will print a message on the screen to tell you what happened. All you have to do is check things — close the door, for example — and press the RETURN key. PictureWriter will clear the screen and redraw whatever picture you are working on.

III. Fun with PictureWriter.

It's a lot of fun to draw pictures with PictureWriter, but there are other things you can do too. Here are a few of them.

PictureWriter Coloring Book.

On the PictureWriter disk are several pictures with names beginning "CB." These are Coloring Book pictures, line drawings for you to color. After you get one of these pictures from the PictureWriter disk, you can:

Copy It.

Take the PictureWriter disk out of the drive, put in your own storage disk, and save the picture for use at another time.

Change It.

Make the picture better by adding drawing steps or editing the ones that are there. Save the new version if you like.

Color It.

Color the picture however you want. You can color the same picture many times, coloring things differently each time. Save the colored pictures you like best.

Have a Contest.

Get some friends to change and color the picture too. Save their pictures, and then get someone to judge which picture is best. Which one has the most unusual colors? Which one has the least color interference? Which one made the most improvements in the original picture?

Shapes and Music.

You can use PictureWriter's Music mode to have a lot of fun with shapes and pictures that make their own music. Here are a few ways:

Listen to a Picture.

Set Music mode by pressing M, and then get a process picture from the disk. Pictures make strange music as PictureWriter redraws them! Some picture music is funny, some sad. Try to figure out what makes good picture music, and think about that when you draw a new picture.

Draw a Tune Shape.

Using the MUSIC.SCRN background or just a clear screen, draw a shape that plays a tune! Draw a line for each note, going up or down as the tune requires. You can stretch the tune line out across the screen, or make it double back, cross over itself, draw a shape. If you need to play a rest, draw a line in the background color. Use Edit to improve your tune, press R to replay it, and then S to save it for later. See how many different shapes you can make that play Yankee Doodle or some other tune. Are there any nice shapes that also play nice tunes? What tune does a square make? A triangle? A square with a triangle on top?

PictureWriter Games.

You can turn some PictureWriter drawings into games you and your friends can play. Here are three to get you started:

Make a Maze.

Make a maze like the ones in the tutorial, using frames, ovals, and lines. (The best way is to draw frames or ovals first, and then erase parts to make the different pathways by drawing lines in the background color.) See who can get through the maze fastest. Then see who can get through with the least steps. Change the maze, add a few things, and do it again. Save the mazes that are really good.

Have a Race.

Draw a racetrack on the screen, with obstacles to avoid. For example, if it's a car race, put cars on the track, an oil slick or two, and maybe a wreck. Then see who can draw a route around the track in the least time, without hitting anything.

Make a Squiggle Drawing.

Starting with a clear screen, draw a squiggly line: anything you like, but the wilder the better. Then give the next person 10 steps, or 20 steps, to make the squiggle into a drawing of something. That person gets to make a squiggle next, and so on until everyone has had a turn. Save the pictures if you want, and vote on which one was the best.

Invent a Game.

It's your turn. You can make lots of games with PictureWriter, and the best games are often the ones you invent yourself.

IV. Index of Commands.

Replacement Policy and Disclaimer of All Warranties and Liability.

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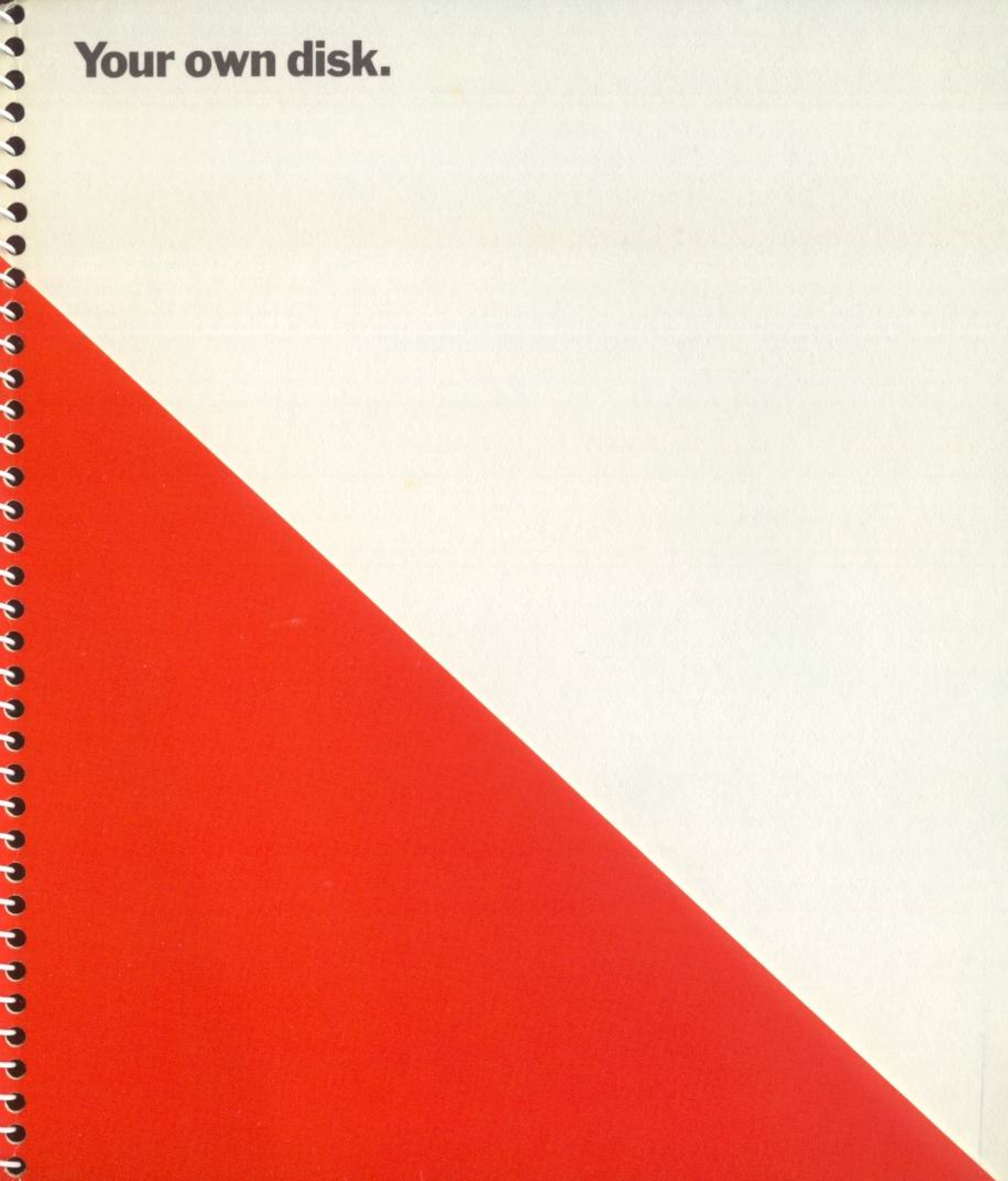
Cut along dotted line.

Proof of Purchase.

This coupon certifies that I have purchased PictureWriter by Scarborough Systems and George Brackett.

Signature _____

Your own disk.

A word about Scarborough and PictureWriter.™

The Scarborough objective is to create software that may be utilized by everyone—instantly. With Scarborough, every step of the learning process is fun.

   This program is the product of extensive design, testing and evaluation by the authors, leading educators and individuals within the appropriate age levels.

   Software from Scarborough takes full advantage of the capabilities of your computer by means of simple command structures, inviting graphics and animation. These programs will progress from simple to complex theories in easy-to-grasp steps that are always entertaining.

Scarborough.

E - *Edit*

Press E to edit your picture. Once E is pressed a list will appear on screen with options. Press Joystick button O to select from options, then press button 1 to execute the options as follows.

Move < — To move back one step (number).
Move > — To move to next step (number).
Delete — Removes the step being edited and moves next step into its place.
Add — Adds another step to your drawing and moves original steps ahead.
Change — This option deletes the drawing step shown by the cursor, and lets you add one other step each time it is selected.
Exit — Lets you leave the editing mode.

P - *Pin*

Press P to pin cursor to a point on screen. All lines drawn after pressing P will radiate from this point. Pressing P a second time will allow the cursor to move again.

G - *Get*

Press G to see a list of all the drawings stored on the PictureWriter disk. Use right and left arrow keys to select, then press RETURN to bring a drawing to the screen.

S - *Save*

Press S to get various options for saving a picture. A picture may be saved to disk or to the printer.

D - *Delete*

Press D to erase a picture stored on disk. A menu will appear and you can select the picture you want deleted by moving the cursor.

PictureWriter Command Card

Z - *Zap (erase)* Press Z to erase the screen.

C - *Color*

After placing cursor in an area to be colored, Press C, then select two colors from right hand side of screen to fill area. After selecting colors, look at paint brush to be sure you want the color. If you do, press Y. If you wish to change color, press N or press ESC to exit.

F - *Frame*

Press F to draw a rectangle or frame that will be formed at the diagonal points formed by the cursors.

O - *Oval*

Press O to create a circle in the area formed by the two cursors when they are diagonal from each other.

< >

These keys control the distance between the cursors. < makes the distance smaller, > makes the distance larger. Make the cursor distance small when you want to draw smooth curves.

B - *Backup*

Pressing B will erase the last step drawn. If done on a color filled background, the original background will show thru. Press R to return to the original background.

R - *Redraw*

Press R to redraw the picture.

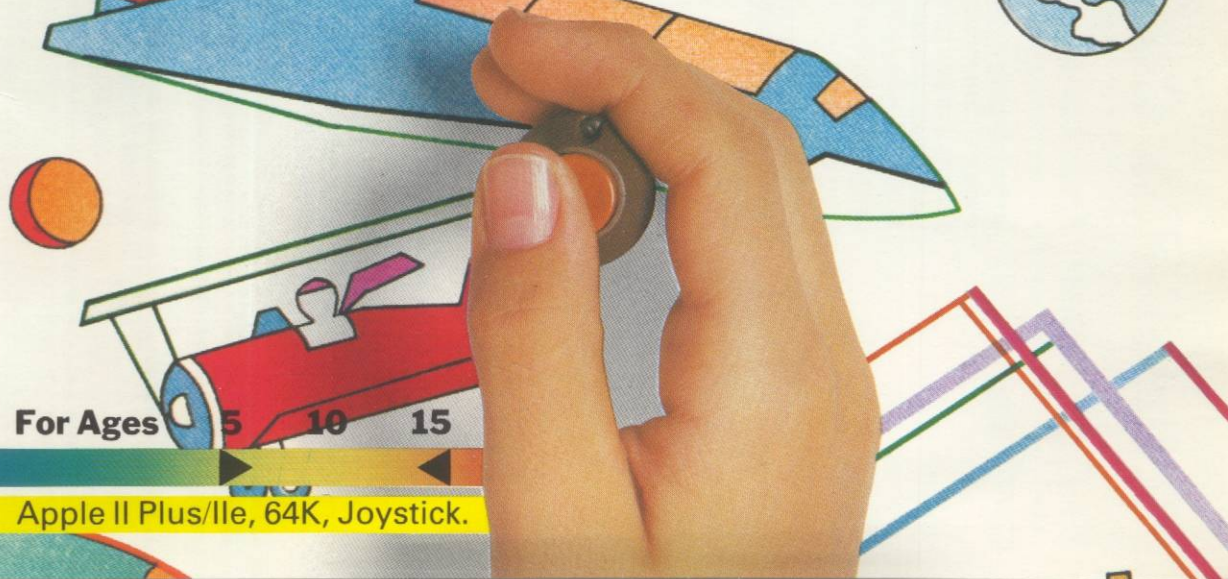# M - *Music*

Press M to get music with drawing. As cursor moves higher so too will the musical notes. Pressing M a second time will turn the music off.

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