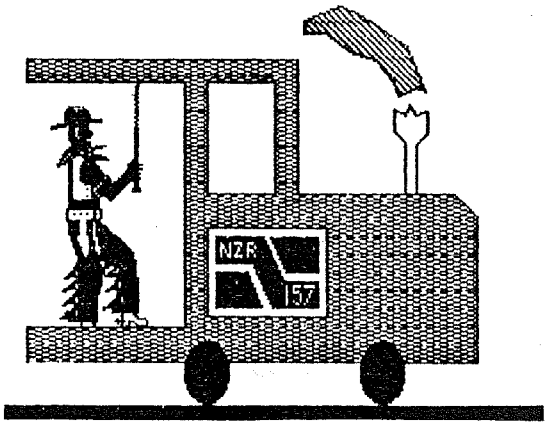
Teach Yourself

grafix



GRAFIX

INTRODUCTORY DRAWING EXERCISES

The purpose of these exercises is to introduce the various functions of GRAFIX in a practical way.

* Begin by loading and running the program GRAFIX.
  You can now see the red flashing cursor and the information line.
  (See Section 5 of the Manual for a description)

* Use the yellow arrow keys to practice moving the cursor.

* Press <HELP>
  You can now see the KEY commands. (Section 6 has more details.)
  Press <NEXT> key.
  Press <BACK> key.

* Press <ENTER> key.
  You can now see the picture panel. (See Section 7 for details.)
  Note the yellow panel marker at the left.

* Move the panel marker (with the yellow arrow keys)
  to the ARROWS panel(6th panel from the left)
  and Press <ENTER>.

```
**************************************************************
*                                                            *
* Throughout these instructions, the following short-hand    *
*    has been used:                                          *
*                                                            *
* <  >  = a key. (e.g. <2> is key 2 on the numeric keypad.)  *
* ENTER = Press <ENTER>                                      *
* MOVE  = use the yellow arrow keys                          *
* SELECT= MOVE the yellow panel marker ( using the yellow    *
*         arrow keys) and ENTER to complete your selection   *
*    C1 = cursor 1.                                          *
*    C2 = cursor 2.                                          *
*                                                            *
**************************************************************
```

GRAFIX

```
*****************************************
*  EXCERCISE 1              SIMPLE TASKS  *
*****************************************
```

DRAW A YELLOW RECTANGLE

Select cursor 1 . . . . . Press <.>
Set the TOP LEFT marker . . . . . MOVE C1 t 10 down, 10 across
Select cursor 2 . . . . . Press <.>
(Notice the information line shows cursor 2 and its position)
Set the BOTTOM RIGHT marker. . . . . Move <C2> to 200 down, 200 across
Select yellow . . . . . Press <3>
Draw the rectangle . . . . . ENTER : SELECT 

DRAW A GREEN RECTANGLE

Change cursor size to LARGE . . . . Press <8> until get LARGE cursor.
Change step size to 5 . . . . . Press <SHIFT/INS> : TYPE 5 : ENTER
Colour green . . . . . Press <2>
Set the BOT RIGHT marker . . . . . MOVE C2 to 185 down, 185 across
Set the TOP LEFT marker . . . . Press <.> : MOVE C1 to (25, 35)
Draw the rectangle . . . . . ENTER : SELECT 

DRAW A CYAN CIRCLE

Set C1 as CENTRE marker . . . . . MOVE C1 to (105, 105)
Set C2 on the CIRCUMFERENCE . . . . Press <.> : move C2 to (105, 155)
Colour cyan . . . . . Press <6>
Draw a circle . . . . . ENTER : SELECT  :PRESS <D>

DRAW A GREEN ELLIPSE

Colour green . . . . . Press <2>
Draw an ellipse . . . . . ENTER : SELECT  : Press <E>
Type 10 : ENTER

DRAW A BLUE POLYGON (pentagon)

Colour blue (Screen 2) . . . . . Press <4> (Until get BLUE 2)
Draw a polygon . . . . . ENTER : SELECT  : PRESS <P> :
Type 5 : ENTER
* Notice there is no "6 pixel problem" so far.

DRAW A BLUE ELLIPSE

Colour Blue (Screen 4) . . . . . Press <4> (Until get BLUE 4)
Draw an ellipse . . . . . ENTER : SELECT  : Press <E>
Type 20 : ENTER
* Notice the "6 pixel problem"

SET BACKGROUND COLOUR

Colour green . . . . . Press <2>
Set the background to current colour Press <@>

NOW FOR SOME FREE DRAWING

Select cursor 1 . . . . . Press <.>
Trail ON . . . . . Press < PAUSE >
Move cursor . . . . . MOVE C1 anywhere
Select small cusor . . . . . ENTER : SELECT
Move cursor . . . . . MOVE C1 anywhere
Clear screen . . . . . Press < £ > : Type Y

Now draw freely, changing colour, cursor size and step size.
Note the "6 pixel" problem.
(See section 8 for details)

```
*******************************
*     E X E R C I S E   2     *
*******************************
```

TASK: To draw a DOG KENNEL.

* NOTES: For KEY COMMANDS. . . . . Press <HELP>
Is TRAIL OFF? (See Information line). Press <PAUSE> if necessary.

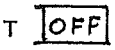
PREPARATION:

1. Clearscreen . . . . . Press < £ >
2. Background colour blue . . . Press <4>: Press < @ >
3. Move C1 to 100,100 . . . . . Press <.>: MOVE C1 to 100,100
   (You may have to change
   the STEP SIZE) . . . . . (Press <PAUSE>:Type a number:ENTER)
4. Select small cursor. . . . . Press <8> until get SMALL cursor.

DRAW AND FILL THE OUTLINE

5. Set FILL pattern . . . . . ENTER:SELECT  :SELECT 
6. Colour green . . . . . Press <2>
7. Select DRAW-LINE function. . ENTER: SELECT 
8. Draw the outline . . . . . MOVE C1 to 100,70 : Press <S>
   (You may need to change STEP SIZE ? ?)
   MOVE C1 to 60,70 : Press <S>
   MOVE C1 to 40,100: Press <S>
   MOVE C1 to 60,130: Press <S>
   MOVE C1 to 100,130: Press <S>
9. Close the figure . . . . . Press <C>

CREATE A DOOR

10. Large cursor . . . . . Press <8> until get LARGE cursor.
11. Colour red . . . . . Press <1>
12. Mark circle centre . . . . . MOVE C1 to 70,100
13. Set the radius . . . . . Press <.>: MOVE C2 to 70,110
14. Set FILL pattern . . . . . ENTER: SELECT  :SELECT 
15. Colour black . . . . . Press <0>
16. Erase the circle . . . . . ENTER: SELECT  : Press <D>: <y>
17. Colour green . . . . . Press <2>
18. Fill OFF . . . . . ENTER: SELECT  : SELECT 
19. Outline circle . . . . . ENTER: SELECT  :Press <D>

** 20. Colour red (for visibility). GUESS!
21. Move C1 to 70,91 . . . . . Do you have C1?
22. Step size =1 : Colour black. ? THINK ?
23. TRAIL ON . . . . . Press <PAUSE>
24. Erase downwards. . . . . Press < ↓ > until 94,91
25. Trail OFF. . . . . Press <PAUSE>

Now go to line ** 20 and repeat these steps until you've created a door.

26. Colour green . . . . . Press <2>
27. Move a SMALL cursor to (100,90), turn on TRAIL and move up to (73,90). Turn TRAIL OFF. Go to (73,109). TRAIL ON. Go down to (100,109). Turn TRAIL OFF.

Did you manage all that without help? Nice effort! Add to your kennel by all means. The best way to master GRAFIX is to use it!

*** By now you have used most of the commands from the PICTURE PANEL. ***

```
*****************************************
*          E X E R C I S E    3         *
*****************************************
```

The task is to draw a LARGE yet simple TRAIN.....Have FUN!

*** NOTES:

```
* For the KEY  COMMANDS.............Press <HELP>
* Check that TRAIL is OFF..........Press <PAUSE> if necessary.
    (Look at INFORMATION LINE)
* You may have to change STEP SIZE
  more often than indicated, in
  order to get exact positions for
  the cursors.....................Press <SHIFT/INS>
```

DRAW AND FILL A BLUE CIRCLE ON SCREEN 4

1. Clearscreen . . . . . Press <£>
2. Set the FILL pattern . . . . . ENTER:SELECT  :SELECT 
3. Set C1 at circle centre . . . Press <.>:MOVE C1 to 165,90
   (You may have to change STEP SIZE to get 165,90)
4. Set C2 on circumference . . . Press <.>:MOVE C2 to 165,100
5. Change step size to 5 . . . . Press <SHIFT/INS>:Type 5: ENTER
6. Blue on screen 4 . . . . . Press <4>:(Press until BLUE 4
7. Draw and fill circle . . . . . ENTER:SELECT  :Press <D>

TAKE A PHOTO AND DRAW IT AGAIN

8. Set TOP-LEFT marker . . . . . Press <.>:MOVE C1 to 150,80
9. Set BOTTOM-RIGHT marker . . . Press <.>:MOVE C2 to 180,100
10. Take the photo . . . . . ENTER:SELECT  :Press <T>
11. Set a new TOP-LEFT marker. . . Press <.>:MOVE C1 to 150,160
12. Develop the picture. . . . . ENTER:SELECT  :Press <D>

DRAW AND FILL THE TRAIN IN RED

13. Set red colour . . . . . Press <1>
14. Set the fill pattern . . . . . ENTER:SELECT  :SELECT 
15. Select the DRAW-LINE function. ENTER:SELECT 
    MOVE C1 to 160,210:Press <S>
    MOVE C1 to 160,10 :Press <S>
    MOVE C1 to 145,10 :Press <S>

    Follow this pattern for.....(145,80)..(35,80)..(35,10)..
    (25,10)..(25,130)..(85,130)..(85,200)..(95,210)

16. Close the shape . . . . . Press <C>

NOW TO INSERT AN OPEN WINDOW

17. Set the fill pattern . . . . . ENTER:SELECT  :SELECT 
18. Set C1 TOP-LEFT . . . . . Press <.>:MOVE C1 to 35,90
19. Set C2 BOTTOM-RIGHT . . . . . Press <.>:MOVE C2 to 85,120
20. Colour BLACK . . . . . Press <0>
21. Draw and fill the rectangle . ENTER:SELECT 

NOW FOR A RED BORDER

Press <LINEDEL> or

22. Fill OFF . . . . . ENTER:SELECT [INK] :SELECT [OFF]
23. Colour red . . . . . Press <1>
24. Draw rectangle . . . . . ENTER:SELECT [▭]

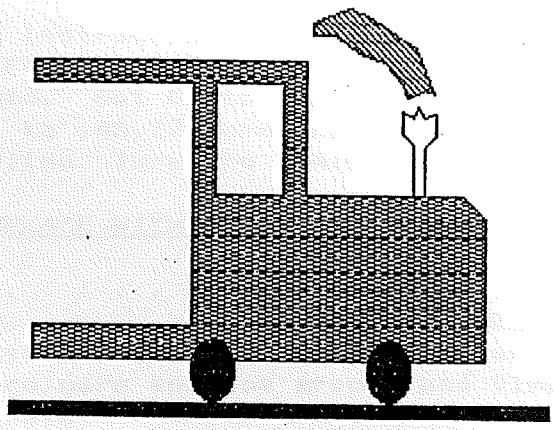
WHITE RAILWAY LINE

25. Select LARGE CURSOR (6 pixel). Press <8> until get LARGE cursor.
26. Colour white . . . . . Press <7>
27. Move cursor . . . . . MOVE C1 to 180,0
28. Trail ON (Note Information line). . Press <PAUSE>
29. Draw the line . . . . . Press <→>until 180,239
30. Trail OFF . . . . . Press <PAUSE>

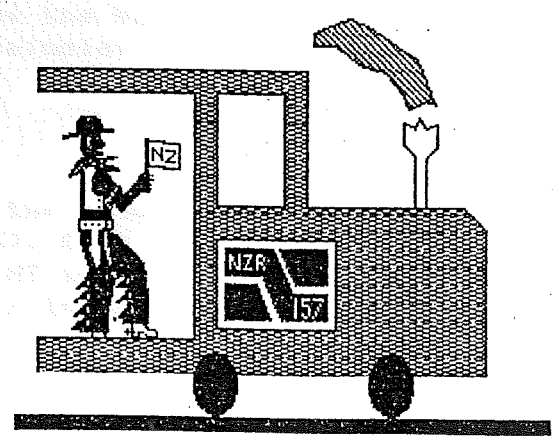
You may like to draw a FUNNEL (smoke stack) and SMOKE using steps 13 to 16 above.

STORE THE PICTURE ON DISK FOR USE IN EXERCISE 4

31. Store the screen . . . . . ENTER:SELECT [💾] :Press <S>
    Type in a FILENAME: ENTER
32. Type a LIBRARY DESCRIPTION . . Type in your description: ENTER
33. Finish . . . . . Press <SHIFT/EXIT>: Type Y



****
* EXERCISE 4 *
****



****
* EXERCISE 4 *
****

TASK: TO ADD AN ENGINE DRIVER TO THE TRAIN

GET A PHOTO OF A SUITABLE DRIVER

Clearscreen	(Press HELP if you are not sure)
Find a driver	ENTER : SELECT
	Press <R> : Type COWBOY :ENTER
Set TOP-LEFT marker	Press <.> :MOVE C1 to 50,80
Set BOTTOM-RIGHT marker	Press <,> :MOVE C2 to 156,130
Take a photo	ENTER : SELECT  : ENTER
	Press <T>

GET THE TRAIN

Find the train	ENTER : SELECT 
(TYPE filename of your train)	Press <R> : Type FILENAME : ENTER
Set TOP-LEFT marker	Press <,> : MOVE C1 to 42,20
Develop photo	Press <SHIFT/REPEAT>

A LITTLE REPAIR WORK IS NOW NECESSARY

WITHOUT specific instructions:
Set the TOP-LEFT marker to 150,20 and BOTTOM-RIGHT marker to 159,70 and take a photo. Set C1 to 146,20 and develop the photo. Select small cursor. Set C1 to 145,17 turn the TRAIL ON, colour red and use <⟶> to draw a red line. Turn the TRAIL OFF.

REMOVE THE GUN AND REPLACE WITH A FLAG OR TRAIN WHISTLE CHAIN.

Set markers	C1 to 56,54 and C2 to 84,74
ZOOM	ENTER : SELECT 

Use the arrow keys and <DEL> to erase the gun.
Select suitable colours and use arrows and <INS> to draw a flag or a whistle chain.
Return to the main drawing . . . Press <BACK>
You may need to reset the markers and do another ZOOM to complete your drawing.

ADD A SYMBOL TO THE SIDE OF THE TRAIN

Save your train (Use filename 4.TRAIN and it will be saved quickly in RAM-DRIVE). Then load the picture SIGNS5 Set the markers to (110,0) and (150,53). Take a PHOTO of the NZR symbol. Load 4.TRAIN . Set the cursor for developing the photo where you you want it. Develop the photo.

ADD A NUMBER TO THE SYMBOL

Set the two markers on the lower part of the symbol. Select ZOOM. Use <DEL> to draw a the number. Press <BACK>. Save your drawing. . EXIT from the program. Use DOS and GPRINT to get a printout of your drawing. (See the GRAFIX MANUAL for instructions)

```
****************************************
*       E X E R C I S E       5        *
****************************************
```

A LOOK AT ANIMATION

There are three programs on the GRAFIX disk that show the use of GRAFIX in creating animation.

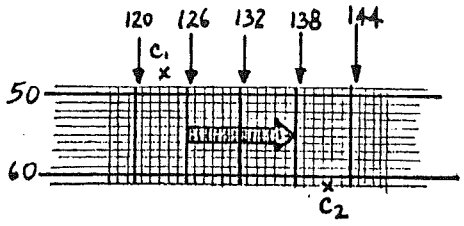
BEGIN . . . by loading and running "TRAFFIC1.BAS".
- Study the listing closely.
- Try a few changes of your own.
- Can you slow the Jaguar at the end when it suddenly speeds up?
- Use the second traffic lane by listing line 119 and change the co-ordinates from (11,...) to (50,...)
- Now run the program again and press <PAUSE> to see clearly what happens to the white line.

NEXT . . . run "TRAFFIC2.BAS"
- After seeing it you might like to go back to TRAFFIC1.BAS and add to it to create a similar scene to what you have just seen in TRAFFIC2

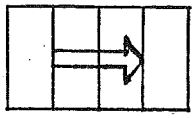
FINALLY . . . run "TRAFFIC3.BAS"
- It shows a green van moving across the white line, with NO "6 pixel problem" and it even replaces the white line as it goes.
- (A simple solution would have been to place the ARROW on screen 4 and the VAN on screen 2. This would work in this case because the VAN is a one screen figure...but it would not have worked if the VAN required 2 screens)

NOTE:
- A PHOTO ALWAYS stores the picture in blocks of 6 pixels.

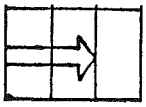
We shall attempt to explore this a little further on the next page.



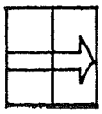
To store the picture of an arrow, I could set C1 to (48, 123) and C2 to (61,141)

This would give this photo ⟶ 

If I set C1 to (48,126) and C2 to (61,138) *

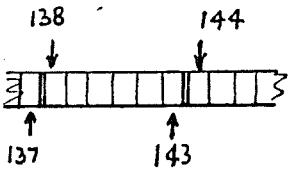
I would get this photo ⟶ 

If I set C1 to (48,126) and C2 to (61,137)

⟶ 

NOTE:
If a co-ordinate is a MULTIPLE OF 6, it is in the FIRST column in a set of 6 pixels. E.G. 126

* So, 138 means I have selected pixels in the block 138 ... 143 *



PRACTICAL EXAMPLE : Retrieve the picture CARS

The green van is drawn tightly between 6 pixel boundaries.
The other cars have white bumper-bars on the outside of the 6 pixel boundaries.
Try taking a photo of the van and developing it in the coloured area.
Now try it with one of the cars.