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1, 2 and 3

# **MICRO** **SCOPE**

Newman College with MAPE

## Introduction

This compendium of software has been compiled in response to requests for programs on previous MAPE Tapes. We have produced a small number of copies of this booklet in an attempt to help those who are trying to acquire the earlier programs. Further copies of this software can be obtained by writing to the MAPE Information Officer at Newman College, Bartley Green, Birmingham B32 3NT. The cost is £8 including postage and packing.

The pack contains the following software:

Canal Locks	BBC	480Z
Mangonel	BBC	480Z
Treasure Hunt		480Z
Deetree	BBC	
Marsh	BBC	480Z
Jumbo	BBC	
Mallory	BBC	480Z
Crackit	BBC	480Z
Pattern	BBC	480Z
Front Page Extra	BBC	480Z
Picture Builder		480Z
Mousey	BBC	480Z

### Acknowledgements:

Alison Poole for compiling the documentation booklet

MAPE (Micros and Primary Education) is open to individuals and institutions. The current subscription of £12.00 per annum (£16 overseas) includes direct mailing of Micro-Scope. Application forms are obtainable from the MAPE Information Officer at the address above

A back copy of MAPE Tape 4 is also available at a cost of £6 and the Owlpack at £7.50. These prices only apply to MAPE members. Cheques should be made payable to MAPE.

# CANAL LOCKS

**SUBJECT AREA** A simulation exercise on how to raise or lower a canal boat through a lock.

**TITLE** LOCKS.

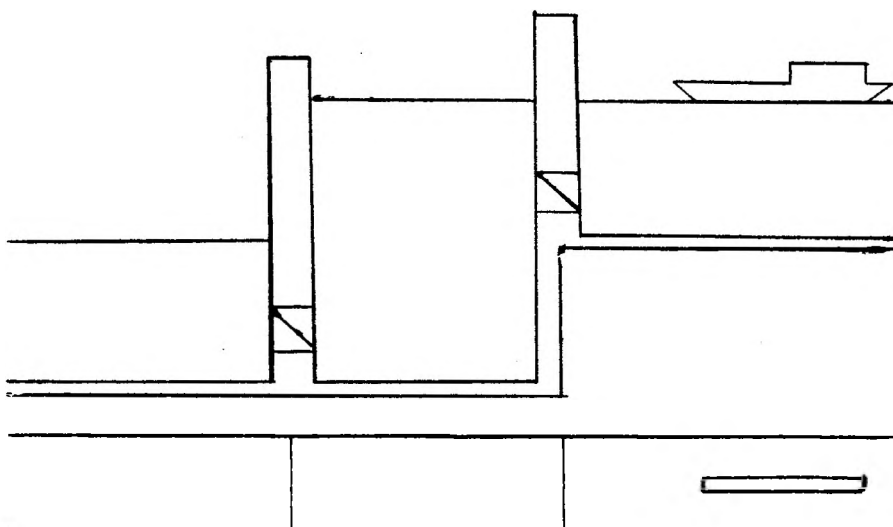
**AUTHOR** Andrea Tapsfield, Newman College, Bartley Green, Birmingham.

**AGE RANGE** Upper Juniors, small group or class use.

**OBJECTIVES** To demonstrate the principle upon which canal locks work.

This program is particularly useful to supplement a scheme of work involving canals. It is not intended to replace an actual visit to a lock, but simply to reinforce the principles that the children would be expected to grasp from such a visit.

In effect the pupils have to guide a boat through a canal lock by opening/closing the appropriate gates/paddles. The first decision is whether to position the boat on the upper or lower section of the canal. This is followed by a decision as to whether the water level in the lock is to be high or low. In the case of 'top lock' and 'high', the screen display is as shown below:



The diagram represents a front elevation and a plan. The pupils then provide a command of the form OPEN TOP PADDLE. For each keyword it is only necessary to type the first letter, and any arrangement of the keywords will also be understood (for example, PADDLE TOP OPEN). The vocabulary used in the program is:

OPEN        CLOSE        TOP        BOTTOM  
MOVE        STOP        PADDLE    GATE

Control Z (480Z) or ESC (BBC) terminates the program prematurely. H lists the vocabulary to be used.

There are two possible errors at the input stage:

1. A meaningless command, such as OPEN MOVE PADDLE. In response to this input the pupil is invited to try again.
2. A command of the correct format, but which would result in disaster, for example OPEN TOP PADDLE when the bottom gate is already open. In this case a message comes up on the screen to indicate why the command can't be executed and the pupil is invited to try again. In this example the message would be "BOTTOM GATE?".

The program terminates when the pupils have successfully manoeuvred the boat from the upper to lower lock or vice versa. There is no scoring system built in and wrong commands are, basically, ignored. The program operates as a demonstration. The lock gates are seen opening and closing, the paddles are seen closed or representing water passing through them, and the water level and boat rises and falls appropriately. A boat that crashes into a gate will generate the message "CRASH", but will allow the pupils to continue with the sequence (there is no facility to move the boat backwards). At the end of the exercise the computer presents a comment regarding the user's capability of taking a boat through a lock.

## MANGONEL

SUBJECT AREA	A simulation exercise based on firing a Roman catapult.
TITLE	MANGON.
AUTHOR	David Harris, Newman College, Birmingham.
AGE RANGE	Upper Juniors.
OBJECTIVES	To encourage pupils to adjust parameters systematically in order to see the effect on the flight patterns of the missile.

### **A Mangonel**

The Greeks and Romans had large 'ballistae' for attacking their enemies. One such weapon was the mangonel. A mangonel was a weapon of war designed to catapult large stones or lighted wads of pitch-soaked rags into the enemy's ranks, so causing great confusion and mayhem.

It was constructed of a large wooden frame on wheels, for moveability, with a vertical frame fixed to the front third. This upright frame had to be extra strong and was also padded to resist the force of the machine's propelling arm. At the base of the vertical frame were two ratchets with a looped cable-like skein (made from horse hair and animal gut), stretched between the two. The base of the propelling arm was inserted into the loop and the skein was twisted using the ratchets, until it could be turned no more. The other end of the propelling arm, which was cup-shaped to hold the ammunition, was then pulled down to the rear of the machine and a hook was inserted into an eye below the loaded end to keep the arm ready for action. As soon as the hook was removed, the arm flew up against the cross framing at the top of the machine, with the result that the stone was lobbed into the enemy.

*For further information see "Science from Toys" (Schools Council 5/13).*

In developing this program it has been difficult to reconcile the mathematical model with historical accuracy particularly as text books seem to vary widely in the information provided.

We have made assumptions which probably deviate from historical fact, but which allow the program greater flexibility. For example, a key concept is the ratio of the mass of the propelling arm to the mass of the stone being catapulted. The elasticity of the skein also affects the overall distance achieved. Therefore in modelling the mangonel the following assumptions have been made:

1. The mass of the propelling arm is 75kg.

2. It is possible to alter the angle of release – this may not have been possible in practice.
3. It is possible to move the position of the cup holding the missile up and down the arm – this seems more practicable than actually using different length arms.
4. The maximum distance that can be achieved is 300 metres.

The program then manipulates 4 parameters:

1. The weight of the rock or missile (20–100 kg) RW
2. The number of ratchet turns (2–5 turns) RT
3. The angle of release (20°–80°) RA
4. The arm length, or more precisely, how far from the fulcrum the firing cup is positioned (2–5 metres) AL

These ranges for the variables ensure that no trajectory can go off the screen.

The program is not designed to be an easy replacement for practical investigation but rather an extension to the experimental work already done in this field of primary science. The program allows the user to change variables one at a time, without affecting others, and to see immediately the effect of this on the trajectory of the rock. The appropriate set of variables can then be stored in memory and called up at any time in order to re-draw all or specified trajectories or to view a table of results showing the previous firing data. Up to 20 such flight paths can be stored within the program, each with its own reference number given by the computer.

In addition to the four variables a number of other commands will provide various options, called up at the user's request. They are as follows:

FIRE	F	Will hurl the rock and draw the path of it through the air.
CLEAR GRAPHICS	CG	Will clear the graphics area only, leaving the mangonel and the current values of the variables on screen.
SOUND	S	Pressing S at any time will toggle the sound of the rock on and off.
DISPLAY RESULTS	DR	Will clear the screen, change to Mode 0 and display the variable status for each trajectory stored, plus the maximum height and distance achieved for each firing.
RE-DRAW	RD(n)	This command will re-draw any previously stored firings. RD alone will re-draw ALL firings. RD followed by a number will re-draw that test firing only.
HELP	H	Will clear the screen and display the parameters and meanings of all available commands.
ESCAPE	ESC	Will end the program.

The program also includes the option of having a target to aim at and a wall to clear. The command WH calls up a wall drawn a random distance away from the mangonel. The height of the wall decreases as the distance increases and huts are drawn behind it (but always within the range of the siege-machine). If a hut is hit the message "Well done – a direct hit" appears on the screen.

Whenever this happens, or when a rock reaches the ground, the user is invited to store the variables leading to that particular flight path. If the response is Y, the computer then gives the flight path a reference number for future recall.

The children should learn, through trial and error, the optimum values of the four variables they can adjust:

1. Maximum range is attained with a release angle of 45°, but this does not give maximum height and may not be sufficient to clear the wall.
2. To achieve the full 300 metres it is also necessary to set the ratchet turns at 5, the arm length to 5 metres and the weight of the rock to 20kg.

Children should also be encouraged to investigate whether, for example, there is more than one set of variables that give a range of 150 metres. Investigate what happens when rock weight, arm length and ratchet turns are kept constant and the release angle is first 60° and then 30°.

## TREASURE HUNT

**SUBJECT AREA** A graphical adventure game.  
**FILE NAME** HUNT  
**MACHINE** 480Z  
**AUTHOR** Graham Smith, Wolverhampton LEA  
**AGE RANGE** Infants – group work

This is a very simple, graphical adventure game for very young children. The aims of the program are:

1. to support the teacher in her normal language development work with middle/top infants, particularly in the areas of projection, prediction and reasoning;
2. to stimulate imaginative language leading to creative written or art work;
3. to create a little environment that the children can explore with their teacher and each other.

The teacher should work alongside a small group of children. Initially two items have to be selected from the following group of six:

axe jam torch dagger rope spade

It is suggested that the teacher should make six free-standing cards, each illustrating one of the six items. Cards representing the two selected items can then be positioned on top of the monitor so that everyone can see which items they have with them.

From this point onwards it is only necessary for the teacher to press one of the four arrow keys or the letter P.

1. P means 'prompt'. If there is a letter P at the bottom of the screen, press P whenever you are ready, and see what happens. This can be repeated as often as you like, until the P disappears.
2. ← ↑ ↓ ↗ → at the bottom of the screen all denote choices of directions to go.  
← or ↖ mean 'Press ←'  
→ or ↗ mean 'Press →'
3. Y and N are accepted to mean YES and NO.
4. If the 'rabbit' in the wood is distracting the children from your discussion, press the SPACE BAR. He will then not appear for at least one minute.
5. On subsequent adventures you may wish to impose restrictions on the objects chosen or the routes taken, e.g. 'The batteries are dead so you can't take the torch.'

Remember that you are hunting for the treasure (which is not randomised). The children may not find it at their first attempt, but will learn by experience and carry this with them into the second and subsequent attempts. The program is a tool for the teacher to explore many avenues in language work, art work etc. Is the cottage inhabited? Is it the same gnome that appears all the time? What is the yellow blob flashing in the cave? Why have you chosen to take the rope? What's behind that tree? Good luck in your search for the treasure.

## DEETREE plus LEAF and TRANS

**SUBJECT AREA:** A database of information based upon a denary tree structure.

**FILE NAME:** DEETREE

**MACHINE:** BBC

**AUTHOR:** Barry Wake, Birmingham LEA Primary Support Team.

**AGE RANGE:** Upper Juniors.

*DEETREE* sets out to be an information retrieval program seeking to aid the identification of a particular object or item rather along the lines of Prestel's 'Viewdata' system. The name itself is meant to imply both the 'branching, tree-like' way the data is handled as well as the 'denary' rather than 'binary' nature of its organisation. Unlike *PQUERY* or *QUEST*, for example, the information required is not 'searched for' or 'queried' by the user entering various questions or commands. On the other hand, unlike *ANIMAL* or *SEEK*, the user is presented at each stage with a 'page' of various options, more akin to a multi-choice test in appearance. Having selected one of these options, a new 'page' should appear with another set from which the user makes another choice, and so on until the end of that particular 'branch' or 'route' is reached which would, hopefully, display the information required.

### Running the program:

Having 'chained' *DEETREE*, and after the initial title sequences, you come to the first main menu:

#### MENU A

Do you want to:

1. load a file
2. look at a file
3. create or edit a file
4. or END?

If you want to load a (new) datafile, then type '1' and give the name of that file and its source (cassette or disk) as requested. When the file has been successfully loaded, the user is returned to MENU A, at which point Option 2 will allow that file to be searched. Pressing <ESCAPE> will bring you back to this menu with the file intact.

By way of a very simple example, a datafile on say, 'Trees' might look like this:

\*\* TREES \*\*

Page 0

Are the leaves:

1. like needles,

2. like scales,
  3. or like neither — ie broadleaf?
- \* select number \* —

By selecting option 3 we would come to 'page 3':

**\*\* TREES \*\***

Page 3

Are the leaves:

1. simple
2. or compound?

Assuming we understand the terminology, we may choose 2, leading us to page 32.

**\*\* TREES \*\***

Page 32

Is the leaf:

1. palmate (hand-like),
2. pinnate (feather-like),
3. or tri-foliolate (3 leaflets)?

If, perhaps more by default than anything, the leaf we are trying to identify looks rather 'hand-like', selecting number 1 could take us to:

**\*\* TREES \*\***

Page 321

It might be:

1. Horse Chestnut.

Having now reached the end of the route, reference to a suitable book might confirm the answer — or not as the case may be, which might in turn require another search from the beginning.

It may be that the pupil using the database will have a leaf in front of him that he is trying to identify. At the end of a route he must be encouraged to consult a textual source (with photographs) to confirm the computer's selection. If the computer's suggestion is not accurate it may be for one of two reasons:

- a) failure to understand the terminology used in the database could lead to branching along the wrong route.
- b) the particular leaf may not be contained in the database — in which case it is then possible to extend it to include the new leaf. In response to 'Another search (Y/N)?', entering a 'Y' begins another search from page 0 whereas a 'N' returns to Menu A.

#### **Creating or editing a Datafile:**

Option 3 of MENU A leads on to this second menu, which is concerned with the creation and altering of datafiles and as such is rather more complicated:

**MENU B:**

Do you want to:

1. make a new file
2. edit a file
3. view a file
4. save a file
5. load a file
6. or return to MENU A?

Here, Option 3 simply allows the pages to be 'viewed' in the order in which they have been entered and without the searching procedure being brought into play. With the 'edit' option a page or a line can be altered, added to or deleted. Option 1 has to be handled carefully, because the data needs to be structured in what approximates to Prestel's 'strict routing' method to work properly. This involves various rules that, in order to save memory, are not given in the program:



### Strict Routing

1. Page 0 (the 'root' page) should be created first.
2. All subsequent pages of 'filials' are derived from the line numbers on Page 0. e.g. Pages 3, 34, 341, 3411, 34115 etc are all filials of Line 3 on page 0.
3. No filial can be added unless its 'parent' exists: e.g. Page 351 must have a parent Page 35.
4. No parent may be deleted unless all its filials are also deleted: e.g. deleting Page 35 entails deleting all pages beginning with those digits.
5. The end of a route or branch must be indicated, where required, by answering 'yes' to the prompt 'Is this a deadend?'. (This identified in the data by a '\*' sign).

The following procedure shows how to create a file. However, before doing so it is important that the user has written down a tree structure similar to the one opposite. This indicates clearly the page numbering system.

Firstly choose option 3 from Menu A and then option 1 from Menu B. The name of your file must be no more than 7 characters. The dialogue thus goes (user input is underlined):

What is the name of your file? TRANS

You are then given the format of page 0.

Top line:

Does the mode of transport travel:

(max is 1 line of 34 characters)

How many more lines on Page 0 3

Line:

1 on water

2 on land

3 in the air

\* Is this page correct (Y/N)? \* Y

\* Is this page a deadend (Y/N)? \* N

\* Another page (Y/N)? \* Y

You are then given the format of the general page.

Page: 1

Top Line:

Does the vessel travel:

How many more lines on Page 1 3

Line:

1 in the water but not below it

2 below the water

3 just above the water level

\* Is this page correct (Y/N)? \* Y

\* Is this page a deadend (Y/N)? \* N

\* Another page (Y/N)? \* Y

Page: 11

Top Line:

(as there is no entry here, press SPACE BAR and RETURN)

How many more lines on Page 11 1

Line:

1 It could be a ship?

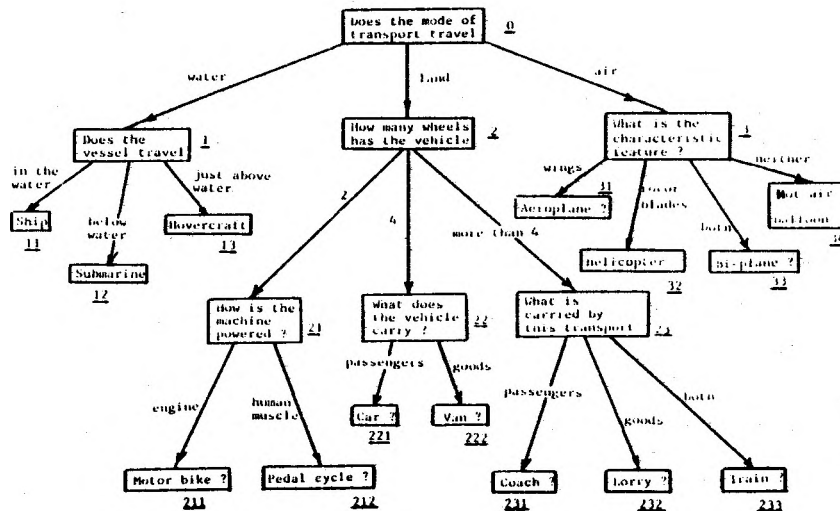
\* Is this page correct (Y/N)? \* Y

\* Is this page a deadend (Y/N)? \* Y

\* Another page (Y/N)? \* Y

From the tree diagram we now repeat the procedure creating pages 12, 13, 2, 21, 211 etc. Note that if a page is not correct then respond to the appropriate question with N, (the page will be ignored) and to 'another page' with Y and start that particular page all over again.

After completing the text of the last page you must type N in response to 'another page' (DO NOT press 'escape' to return to the menu). In response to N you will be returned to Menu B automatically, where the sensible option is to choose 4 and save your results on cassette or disc. If you want to check your work, select option 3 from Menu B and all will be revealed (in the order in which it was typed in).



Now let's assume you want to edit a file. For example, alter page 2 so that it includes the possibility of no wheels (i.e. a donkey). Choose option 2 from Menu B. The options are listed below:

- 1) alter a page
- 2) add a new page
- 3) delete a page
- 4) return to Menu B

One possibility is to choose option 3 – in other words to delete page 2 and then add a new page 2; or you could choose option 1 – to alter page 2. If there is more than one line to be altered, added or deleted then choose the former method. If there is only one line to be amended then choose the latter method. However, if you choose option 1 you are then asked if you want to: 1) change 2) add 3) or delete a line. Choosing option 2 allows you to add the possibility of no wheels (do not number the line you are adding – this will be done automatically). Then you need to create page 24 by choosing option 2 and proceeding as if first creating the file.

Remember that it is easier initially to keep a record of your file on a structured tree diagram.

*Note:* If the entry on a particular page is preceded by a hash sign (#), then this signifies that the page is recorded as deadend.

For further information on this program the reader is referred to the *MICRO-SCOPE* Special on Information Retrieval.

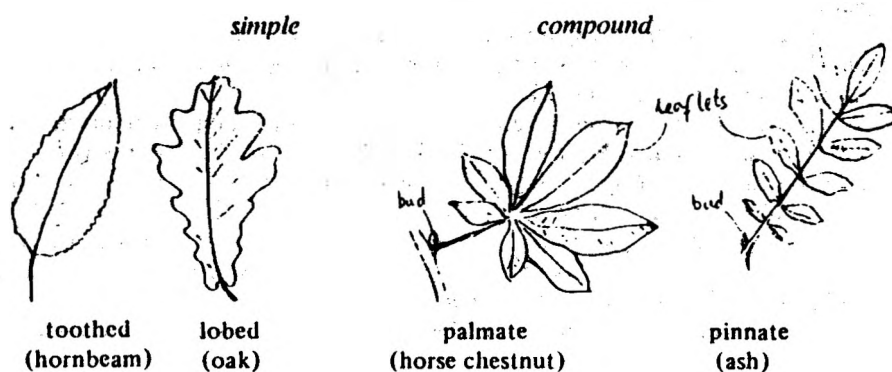
#### Further notes

- 1) The program should accommodate approximately 30 'pages' of 10 lines or 60 'pages' of 5 lines etc.
- 2) Typing 0 (zero) will take you back to the previous page of a search (as long as you are not on the last page of any branch).

The data base accompanying this program is called '*LEAF*'. The following is an expansion of some of the terminology involved.

This is a file of some seventy trees which are relatively common in Birmingham, and seeks to aid their identification by the characteristics of the leaves. Specialist botanical terminology has been largely avoided, but some terms have been retained and may require explanation particularly for children new to the subject.

- a) Leaves can be divided into three types:
- needles – very narrow, needle-like leaves; e.g. Pine trees
  - scales – tiny, (though occasionally very large) overlapping leaves, covering the whole twig; e.g. Cypresses
  - broadleaf – not needles or scales, but generally much flatter and broader; e.g. Limes
- b) Broadleaves can be subdivided further into:
- simple – a single leaf on a stem: e.g. Beech
  - compound – two or more leaflets on one stem (with a bud at the base of the stem, not the leaflet); e.g. Ash
- c) Other terms used:
- margin – the edge of the leaf which may be smooth, wavy, toothed or even lobed.
  - palmate – radiating from a central point in a hand shape, cf Horse Chestnut
  - pinnate – leaflets (or lobes) arranged on either side of a stem, cf Ash.
  - rosettes – (needles) growing in a bunch or cluster from one woody stem, cf Larch
  - alternate – leaves arranged successively on the stem, cf Rowan
  - opposite – leaves growing from the same point on either side of the stem, cf Sycamore.



#### A selection of reference books

##### For children:

- Allen and Denslow (1970): *The clue books – trees*: Oxford, OUP.  
 (A very good introduction to a botanical 'key')
- Barrett, M. (1981): *The Usborne guide to trees*: London, Usborne.  
 (over 120 well-illustrated trees)
- Selberg, I. (1977): *The nature trail book of trees and leaves*: London, Usborne.  
 (Scholastic edition) (a general introduction to trees and woodland life)

##### General:

- Kilbracken, J. (1983): *The easy way to tree recognition*: London, Kingfisher.  
 (uses a good systematic 'key' to aid identification).
- Martin, E. (1978): *Trees of Britain and Europe* (Kingfisher Guide): London, Kingfisher.  
 (a concise guide to over 100 trees)
- Mitchell, A. (1974): *A field guide to the trees of Britain and northern Europe*: London, Collins.  
 (one of the 'standards' for the budding botanical expert)
- Phillips, R. (1978): *Trees in Britain*: London, Pan.  
 (an 'encyclopaedia' of some 500 trees in full colour)

## MARSH

(keep your feet dry)

**SUBJECT AREA** A game of strategy.  
**FILE NAME** MARSH  
**MACHINE** BBC and 480Z  
**AUTHOR** From an original idea by P.D. Haydon. Donated to MAPE by MEP.  
BBC version written by I.O. Software.  
480Z version written by S. Harris, Newman College.  
**AGE RANGE** Lower and upper juniors.

The program takes the form of a game in which the object is to move across a snow-covered marsh, avoiding pools and trees which are in different positions for each game.

The trees are clearly visible, but because of the snow cover, the pools are hidden. If you fall into one, you lose the game, but fortunately you are rescued and can try again. The object is to reach home, indicated by a house on the far side of the marsh.

When the program is run, the title page will appear and you will then be asked whether you wish to see the rules. Press R to see them or C to continue with the game.

Three levels of difficulty are available; press E, A or H for easy, average or hard. The level of difficulty is directly proportional to the number of hidden pools. After a short pause the game will start.

To play, you move from square to square by choosing a direction; north, south, east or west (N, S, E or W), followed by RETURN. For the first twenty-five moves, a guide will help you by telling you how many pools surround the square you are on, including those in a diagonal position.

If you fall into a pool, they will all be displayed and another man will come to rescue you. Press C to continue. To play again press A (you could then change the level of difficulty), or press E to end.

If you manage to reach the house, the positions of the pools will be revealed.

## JUMBO

**SUBJECT AREA** Practice in sequencing.  
**FILE NAME** JUMBO  
**MACHINE** BBC  
**AUTHOR** Richard Phillips, ITMA Collaboration, Shell Centre, Nottingham.  
**AGE RANGE** Infants

The following comments on the program are supplied by the author.

*JUMBO* is a very simple program written with five-year-olds in mind, although older and younger children may get something out of it. It presents a small 'micro-world' inhabited by an elephant, a crane and a lorry. You control this environment by pressing single keys on the keyboard, so for example, U winds up the crane and D brings it down again. It is for you to discover the possibilities in this miniature environment.

One could argue for a number of educational reasons for using this program it has small doses of sequencing, problem solving, knowledge of alphabet, and directional words. But I like it best because, for a short while, it puts the user in control. It is fun, challenging, and sometimes a little unsettling to be put in the driving seat and let loose to explore an environment where the possibilities are not entirely predictable. This investigative element is commonly met when using LOGO and adventure games, but it is also important in simpler software. *JUMBO* is an attempt to exploit this.

Words displayed in the program have their initial letters in capitals (e.g. Down) to match the capital letters on most keyboards. I am not very happy with the word 'Release', but the most obvious alternative – 'Untie' is ruled out because it begins with the same letter as 'Up'. No doubt, teachers with some knowledge of BASIC will make their own adjustments as they see fit.

I am grateful to Derek Radburn and Christine Bennett for their helpful comments and to my sons, William and Thomas, for their enthusiasm.'

**Note:**

The only Keys that are accepted are:

E Elephant	U Up
C Crane	T Tie
L Lorry	F Forwards
D Down	R Release
B Backwards	

## MALLORY

**SUBJECT AREA** Problem solving  
**FILE NAME** MALLOR  
**MACHINE** Acorn BBC and 480Z  
**AUTHOR** Anita Straker, Director of MEP Primary Project. This program was originally included in the MEP Primary Language pack and has since been altered after suggestions by Bob Spedding (Devon LEA) and David Kay (Devonport HSG, Plymouth) to use data stored in files instead of data statements in the BASIC program.  
**AGE RANGE** Juniors

This is a program which poses a problem for children to solve. Rather like the board game *CLUEDO*, a valuable object has been stolen and has to be found.

Two settings are provided on this disc in the form of datafiles. The datafile *MANOR* is Mallory Manor, a residence with 25 rooms, at which twelve people are staying. One of ten different items is stolen. The datafile *MUSEUM* is Brighton Museum, a museum with 25 rooms, at which twelve people are present. One of twelve different items is stolen.

Two accompanying programs, *SET-FILE* and *EDIT-FILE* allow you to create new settings of your own, or to change the content of existing ones.

## Operating instruction for MALLORY

After loading the program you are shown a Choice Page:-

- A Mallory
- B Set-file
- C Edit-file

(All 3 programs can be transferred to cassette in the usual way. They will all detect automatically whether disc or tape files are required.)

### *MALLORY*

You will be asked for the name of the data file you wish to use. Two data files are on the present disc; they are called *MANOR* and *MUSEUM*.

The data file you have chosen will be loaded and the program begins by displaying the Choice Page:-

- A play the game
- B see the notes
- C stop

Note that you can leave a game at any point and return to the above menu by pressing the ESCAPE key.

After you have chosen to play you will be told where and at what time a theft has occurred. You will then be told what room you are in, and statements are made by any persons in the room. In the best traditions of the whodunnit, to be named as a suspect is a guarantee of innocence.

You can move to another indicated location by typing the first three letters of its name.

You can choose whether or not to make an arrest, but will have to type the first three letters of your suspect's occupation in order to do so. A successful arrest can result in promotion. False arrests lead to demotion.

The game ends either by reaching the highest possible rank of investigator, or by losing the lowest rank.

### *Set-file*

Use this to create files of your own locations for use by the *MALLORY* program. It is likely that you will need to plan the details of this away from the computer. The attached scene planning form should be of some help.

You will be asked for the name of the place – try to think of somewhere that an assortment of people might use. Examples are: Museums, Fairgrounds, Spaceships, Ocean Liners, Schools, Factories, Hospitals, Castles, Palaces and Prisons.

You next have to set the time. You may choose to have a setting in the past, the future, or at some outlandish hour of the night.

The number of objects you may choose is between 3 and 15. How incongruous they are depends on your sense of humour.

You can have up to 25 rooms. It is most important that they each begin with a unique set of three letters, and that they don't begin with any capital letters.

The number of people you can have must be between 3 and 15. As with the rooms each must start with a unique set of three letters and must not start with a capital letter. You will be asked to supply a name, occupation and two remarks for each person. These remarks can be of any nature you like, but don't include any references to where they were or whom they might suspect – that's something the computer does for you.

Last of all you have to choose the name of the searchers – it might be the police; it might equally be the Neasden Rat Catchers. At all events you will have to make up a suitable hierarchy of five ranks.

The program will end by saving your data file to disc or cassette. Remember to make a careful note of its name.







THE SEARCHERS (Capitals/lower case)

The searchers are:

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

RANKS

Top: 

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Second: 

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Third: 

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Fourth: 

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Bottom: 

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

The scene is Mallory Manor.

The time is the weekend.

there are 12 objects:

diamond tiara  
pair of gold cuff-links  
string of pearls  
pair of silver candlesticks

ruby and emerald brooch  
collection of gold coins  
sapphire ring  
platinum bracelet  
pile of £10 notes  
jewelled casket  
gold watch  
large silver plate

There are 25 rooms:

hall  
living room  
dining room  
kitchen  
billiard room  
cloakroom  
bathroom  
nursery  
conservatory

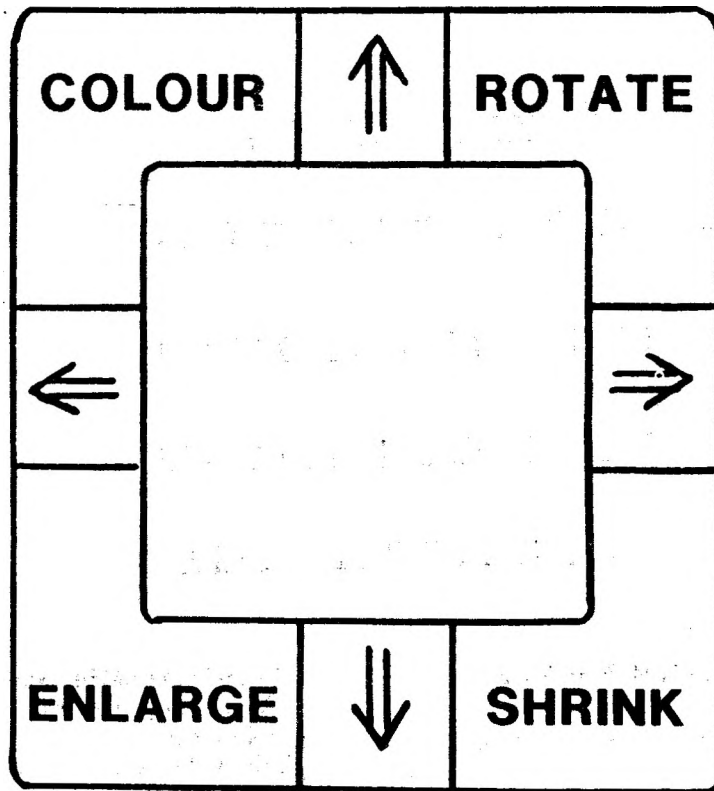
stables  
attics  
cellars  
laundry  
library  
music room  
study  
pantry  
scullery

greenhouse  
garage  
coach house  
swimming pool  
front bedroom  
back bedroom  
small bedroom

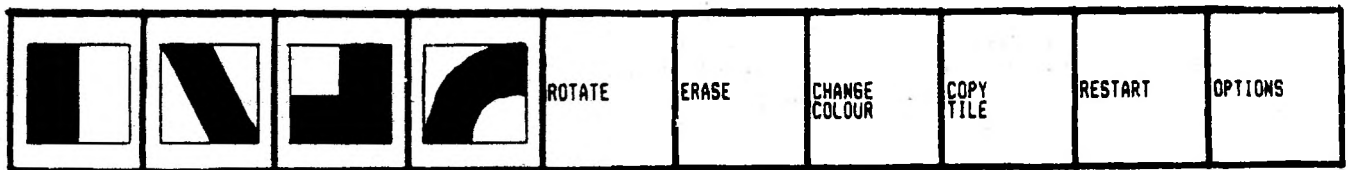
There are 12 people:

Fergus  
butler  
I'm afraid I know nothing.  
Most regrettable.  
Mrs Beeton  
cook  
Don't know a thing, my dear.  
Such a shame.  
Mr Rose  
gardener  
Well, it beats me.  
It's very strange.

Sir William  
brigadier  
Awkward business this is.  
Very bothersome.  
Lady Chester  
duchess  
Goodness gracious!  
How did it happen?  
Howard Grant  
writer  
It really is very mysterious.  
I don't like it at all.

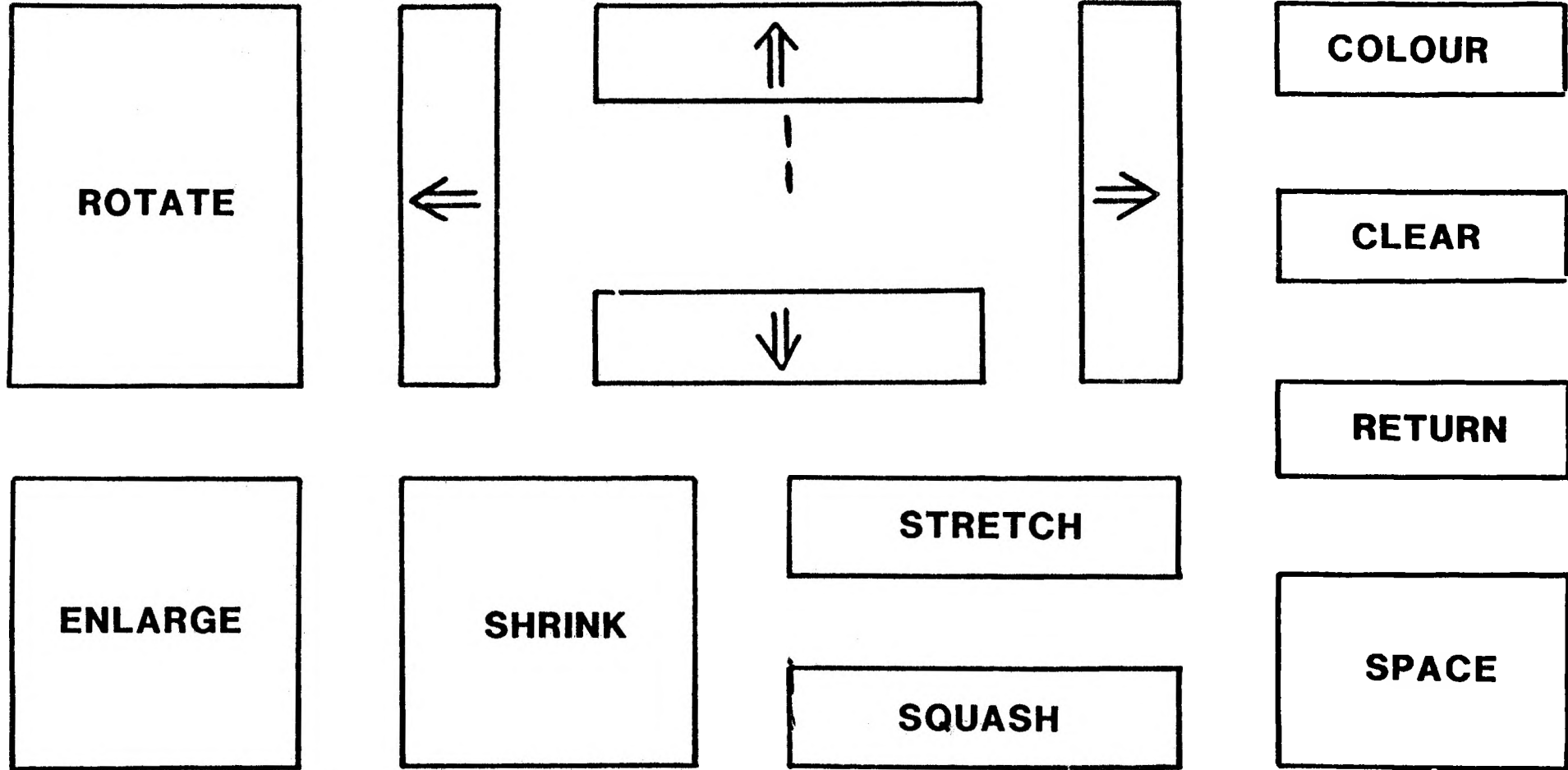


*For Picture Builder*



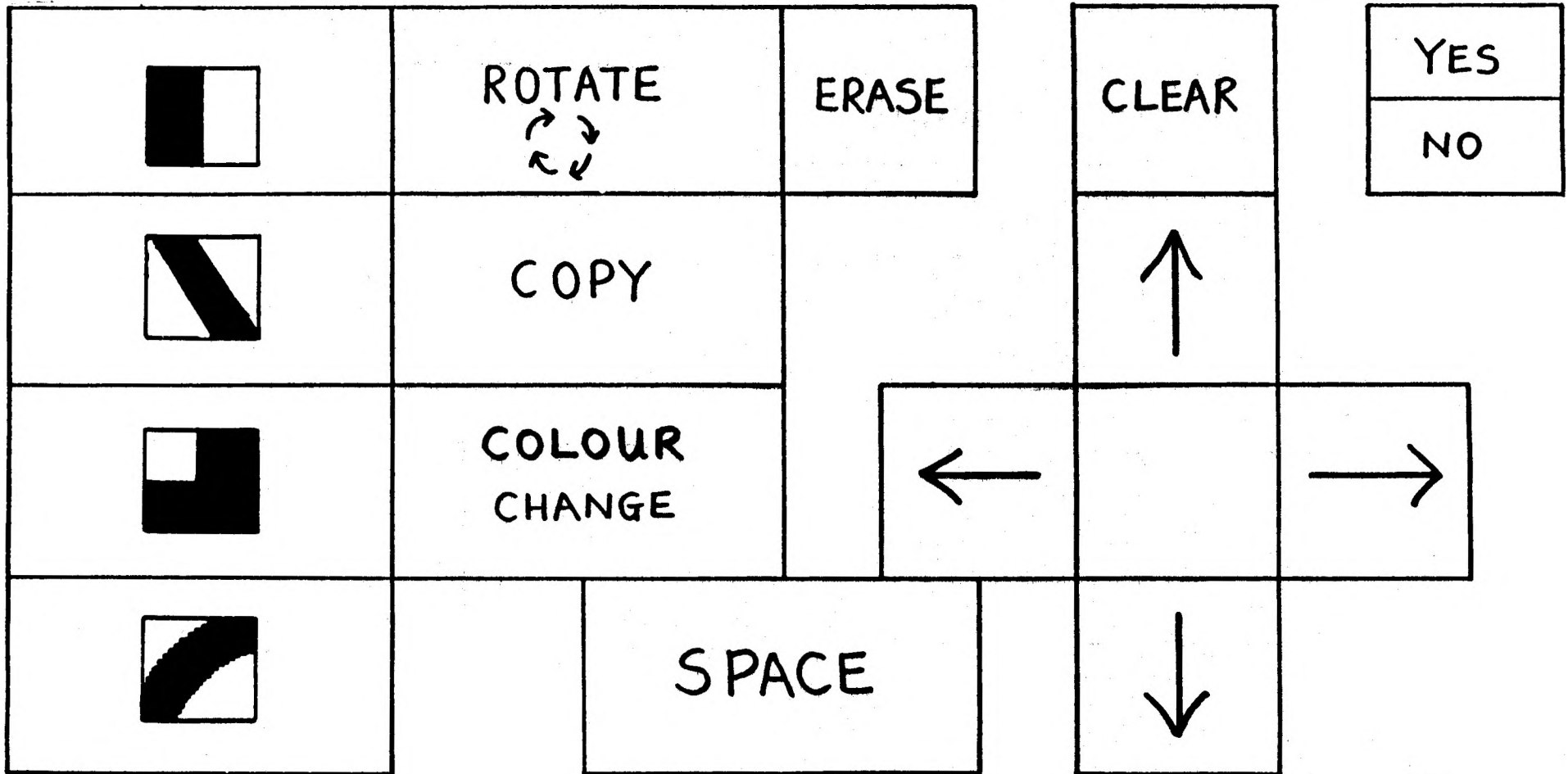
*For Pattern (on the 480Z, this fits above the digit keys)*

Please note that this overlay has been slightly reduced from A4 size to fit on this page.



*Concept Keyboard overlay for Picture Builder*

Please note that this overlay has been slightly reduced from A4 size to fit on this page.



*Concept Keyboard overlay for Pattern*

Doris  
maid  
It's ever so surprising.  
I think it's scary.

George  
chauffeur  
I never saw a thing.  
It makes you wonder.

Brenda  
nanny  
Thank goodness the children are out.  
It makes me shiver.

Gloria Mills  
actress  
I feel its so exciting!  
How dramatic though.

Linda Ewing  
model  
How could anyone do such a thing?  
It's very unfortunate.

Giles Weale  
architect  
What a dreadful thing to happen.  
Most puzzling.

The searchers are the Police.

Their ranks are:

Chief Superintendent  
Superintendent

Inspector

Sergeant

Constable

---

### Classroom use

The program is intended to generate discussion, so use it with small groups – two or three is a good number.

There is nearly always a logical solution to the problem, and the solution is different each time the game is played.

Children should be encouraged to keep notes of how the rooms in the location link together, where people say they were at the time of the theft, who they were with and whom they suspect.

Allow time for children to reflect on the experience of solving the problem. When did they first become suspicious? Did anything reinforce those suspicions? How confident were they when they made the arrest?

Promote discussion of a generalised nature, with questions for discussion such as:

Was that the sort of place you would like to stay at?

What sort of punishment should the thief get?

If you were the thief, what sort of statements would you make to cover up your crime?

Is it ever acceptable to tell lies?

How would you feel if a friend took something belonging to you?

How can people stop things from being stolen?

Other ideas for investigation are:

Is there anywhere like that near the school? What can we find out about it? Can you make a model of it?

Plan the wardrobes of the characters. What do the people look like? Draw or paint portraits of them.

Design a 'Wanted' poster for one of the people, or even someone in the class. How many children can recognise the person from the description and picture on the poster?

Dramatise some of the other events which might have taken place at the location.

Let children design their own *MALLORY* data file. In order to do so they will need to do a great deal of planning away from the computer. They will need to research on the type of location, so that room-names are appropriate, and on appropriate names and jobs for the people. The children will only be able to decide on suitable phrases for the people if they have created a personality for each one. Aids to developing such character studies could involve writing, drawing and dramatic improvisation.

Allow children to use each other's data files when playing at *MALLORY*; this provides the opportunity for feedback from discussion with those who try to solve it.

# CRACK IT

**SUBJECT AREA** A program associated with language development, in a similar vein to TRAY  
**FILE NAME** CRAKIT  
**MACHINE** Acorn BBC and 480Z  
**AUTHOR** Anita Straker, Director of MEP Primary Project  
**AGE RANGE** Juniors

In this program you can try to decipher a piece of coded text. Two sample pieces of text, *TEXT1* and *TEXT2* are provided on the disc. Additional texts may be created using the accompanying *MAKE IT* program.

## Operating instruction for CRACK IT

After loading the program you are shown the Choice Page:

- A Load a new text
- B Load a partly decoded text

### *Load a new text*

You will be asked to type in the name of the file. If you are trying the program for the first time, then choose from either of the two sample pieces of text, *TEXT1* and *TEXT2*. If the file does not exist you will be returned to the Choice Page. After the file has loaded there will be a short pause whilst the text is coded. Be patient and press the RETURN key when prompted.

There is a choice of having some of the letters put in before you start. If you elect to do this you will be asked whether you want

- A least common letters (1-15)
- B chosen letters (1-10)

Note that the least common letters are based on the letter frequencies for the particular text, not those for the English language. If you take the chosen letter option, you will have to type in your letters, pressing RETURN when satisfied.

The text is then displayed between two lines. All the text appears in lower case. Any letters already inserted appear in upper case. Note that the RML version uses different colours for upper and lower case letters – it was not possible to do this in the BBC version for technical reasons.

In the bottom left hand corner of the screen you will see a box labelled 'Change'. Decide on the letter in the text that you want to change. When you type the letter, it appears in the 'Change' box. Press RETURN to confirm your choice or use the DELETE key to rub out the letter. When you have pressed RETURN a box labelled 'To' will appear in the bottom right hand corner of the screen. Decide on the letter you want substituted. Type it and then press RETURN. Substitution will then take place throughout the text.

Pressing the ESCAPE key will reveal 4 options. These are:

- Undo
- Save
- New
- End

There is a fifth, hidden option which is Display.

Pressing ESCAPE for a second time will return you to the text. Select from these options by typing their first letters.

UNDO allows you to recode a letter which you have already changed. It is just like Change, but operates in reverse.

SAVE lets you save a partially decoded text to disc for completion on another occasion. The file name is the same as the original text with an appropriate extension. On the 480Z, .CRA for full text and .CRC for partly decoded text. On the BBC, Z. for full text and Q. for partly decoded text. As part of this option, the text can be printed out if you wish, so that children can work on the code away from the micro.

NEW returns you to the Choice Page.

END lets you terminate the program. The question 'Are you sure' is asked to serve as a reminder that everything you have been doing will be erased from the computer's memory.

DISPLAY will display the text in its uncoded form. Only use this as a last resort.

Successful decoding of the text is signalled by a congratulatory message and a short tune. After a pause, you are asked to press RETURN and the program ends.

### Operating instructions for MAKE IT

After loading the program you will be shown the Choice Page:

- A make a new text file
- B see the notes
- C stop

#### *Make a new text file*

When you choose this you will be shown two lines between which you may enter any text you like, subject to the following constraints:

- a) The length of the text is limited to 6 lines of double height characters.
- b) Any letters or punctuation may be used but no numbers.
- c) All text must be typed in capitals.
- d) The RETURN key must be pressed at the end of each line.

Enter the text a line at a time. Any mistakes can be rubbed out by pressing the DELETE key. The whole line can be erased by pressing the left arrow key. Press RETURN at the end of each line. Blank lines may be inserted by pressing RETURN.

When the six lines (blank or otherwise) have been entered, you will be offered the chance of changing it. If you choose to do so, the cursor is placed at the end of the first line of text. Step down through the text by pressing RETURN. Deal with any mistakes by using the DELETE key or the left arrow key.

If the text is satisfactory, you will be asked if you want to save your text. Type the name of the file you wish your text to be saved under. When asked, place a disc in the disc drive and press RETURN. If that file name has already been used on the disc, you will be told and given the choice of either giving it a new name or of replacing it. Your text will then be saved to disc.

Next, you will be shown the letter frequencies contained in the text. A note of these might prove useful when considering later classroom use.

Finally, you will be given a chance to have a copy of your text printed out. Make sure that your printer is properly connected up and switched on if you want to do this.

The program ends by returning you to the Choice Page.

### Notes

Both *CRACK IT* and *MAKE IT* use printer routines for an Epson parallel printer. Users of other printers will need to change these routines. In *CRACK IT* the routine starts at line 15500, and in *MAKE IT* at line 6000. (4550 on 480Z).

## **Classroom use**

The program has some similarities to *TRAY*, but the strategies involved are rather different. Encourage the children to discuss these strategies. Looking at the text as groups of letters may be more profitable than looking at it as words. Careful inspection of the text for three-letter groups – which could be ‘the’ or ‘and’, may be worthwhile. The program is intended to generate discussion, so use it with small groups.

Children should be encouraged to find out more about codes, away from the computer. Questions and areas to research might include:

What is Morse Code?

Who uses it?

What are the ways in which you can send messages in Morse Code?

What is Semaphore?

How was it used to send messages over long distances?

Use semaphore code to transmit a simple message across the school playground.

The Red Indians used smoke signals to send messages. How did they do this?

How was the news of the coming of the Spanish Armada spread through the country?

Spies have always used codes. Can you make up a secret code of your own?

People try very hard to break other people’s codes. Can you break a code that has been invented by somebody else in your class?

Sometimes people talk about codes, sometimes they talk about ciphers; what is the difference between the two?

Alpha, Bravo, Charlie, Delta – these are the first four in the code used by people such as the police, ambulance and the fire-brigades: try to find out the rest of this code. Why do they use it?

The users of CB radio often seem to use a code when they speak to each other – what can you find out about it?

Disabled people often need to use codes – find out what you can about Braille and Bliss symbols. Can you devise a code which might help the handicapped or those in need?

If you look on packets and tins from your supermarket, you will notice small panels of black and white stripes. These are called bar codes. What are they used for? Who can read them?

Look at labels on articles of clothing. You will see that they give information on how to look after them. Can you find out what it all means?

Road signs have a code all of their own. Make a wall frieze of some of the more unusual ones.

Gypsies and travelling people have codes to mark good places to camp and houses to avoid. Devise a similar code of your own.

Codes often appear on television. Look at a weather forecast. Could you use codes like this to keep your own records of the weather?

If you have a word processor like *WRITER*, could you use the search and replace function to encode a piece of writing? Could your friends decode it?

The number plates on cars contain coded information. Record the number plates of cars in the staff car park. Can you find out where the cars come from and how old they are?

A good source of information on codes is *Codes* in the Leapfrog series published by Hutchinson.



# PATTERN

SUBJECT AREA Pattern recognition and design  
FILE NAME PATTERN or PATCON  
MACHINE Acorn BBC B, RML 480Z  
AUTHOR AND PROGRAMMER Nigel Peacock, Norfolk LEA  
AGE RANGE Infants and lower juniors

A simple design program for lower junior and infant children involving the positioning and rotation of tiles onto a screen area to make patterns or pictures.

There are two versions of the program, *PATTERN* which makes use of the normal keyboard and *PATTERN-CONCEPT* which makes use of a concept keyboard. One of these is selected from the main menu. If *CONCEPT* is being used, ensure the concept keyboard is connected to the computer prior to switching the power on. On the 480Z both versions operate from the program *PATTERN*.

## Using the program

*PATTERN* makes use of the function keys (red keys) to access the shapes, utilities and options available in the program and the cursor keys (arrow keys) to move around the picture area.

The four cursor keys will move a black box or cursor around the 'picture'. This indicates the place where the tile will be printed on the screen. The arrows move the box in the appropriate directions.

By pressing one of the function keys from f0 to f3, a tile will be printed on the screen in the box. It will be printed in the colour shown at the bottom of the screen.

On the 480Z version the digit keys are used rather than the function keys on the BBC (f0 corresponds to 1, f1 corresponds to 2 . . . f9 corresponds to zero). Hence it is possible to make a similar keyboard strip.

*f0 - f3 Available tiles.*

The four tiles are:—

f0    f1    f2    f3 (for diagrams see keyboard strip on centre pages.)

The box can then be moved to a different place on the screen and another tile placed there. Repeating this will gradually build up the picture. If a tile is wrongly placed, it can be erased using the appropriate function key (f5) or another tile can be placed at that position.

*f4 Rotate.*

If a shape is at the position of the cursor box it can be rotated by pressing the f4 function key. For all the shapes except one this will rotate the shape clockwise through a right angle. The odd one out is the 'diagonal' tile on f1. Pressing f4 will result in the tile being reflected or rotated. This was chosen to allow a greater range of shapes and to make it easier to connect the four different tiles together when designing a picture.

*f5 Erase.*

To remove a tile from the picture, the cursor keys are used to position the box round the appropriate tile and then by pressing the f6 function key the tile will be removed. This will only erase the tile which is *in* the box.

*f6 Change colour.*

For the picture you have two available colours. At the bottom of the screen a coloured square can be seen. This will indicate the colour of the tile to be placed on the picture. If you want to change the colour of a particular tile, pressing f6 when the cursor box is around the tile will change the colour of that tile. The two colours which you have available can be selected from the options page. (see f9 – Options.)

*f7 Copy tile.*

'Copy tile' will allow the user to draw a series of identical tiles. Select the tile required by moving the cursor box over it and then press f5. The program will display 'COPYING' and the tile to be copied will be shown at the bottom of the screen. Using the cursor keys, the box and the tile will be moved around the screen leaving a trail of identical tiles. To end the copying, press f5 again.

*f8 Restart.*

If a fresh start is required, f8 will return the program to the title page displaying the message, *This will erase the picture currently being worked on.* A prompt is given 'Are you sure? (Y/N)'. Pressing 'Y' will confirm the choice and 'N' will return you to the picture you were working on.

*f9 Options.*

There are five options shown when f9 is pressed. The screen will clear and a menu will be displayed. The options are:

- 1 Load a picture
- 2 Save a picture
- 3 Print a picture
- 4 Change colours
- 5 Go back

Choices 1 and 2 make use of the disc. To load or save a picture, press key 1 or 2. You will be asked to enter the name of the picture. This must be a word of not more than seven letters. Typing the name and then RETURN will cause the necessary function to be performed. If you wish to escape from this, pressing RETURN when there is no name will return you to the picture you have been working on.

The option to print a picture has been written for an EPSON RX80 or FX80. This option could work with other EPSON compatible printers. Ensure that the printer is connected to the computer before you start work if printing is required.

Key 4 will again change the screen, displaying the screen title and an instructive message. You will also see 'Colour 1', This will be in the first colour used for the picture. This can be changed by pressing a number from 0 to 6. A list of the colours for each number are below. Pressing a number will change the colour of 'Colour 1' and when satisfied, RETURN will confirm the selection. This is repeated for the second colour. When both the colours have been chosen, you are returned to the picture you were working on, in the newly selected colours.

The colours are:

- 0 Black
- 1 Red
- 2 Green
- 3 Yellow
- 4 Blue
- 5 Magenta (purple)
- 6 Cyan (light blue)

The last choice is 'Go back'. This will return you directly to the picture you were working on.

*ESCAPE Catalogue.*

Pressing **ESCAPE** will clear the screen and display a directory of pictures which have been saved on the disc. The **SPACE BAR** will return you to the picture.

*BREAK Return to menu.*

This key must **NOT** be pressed unless you want to change to another *program* on the disc. It will wipe out any work you have done and return you to the main disc menu.

The uses to which this program can be put range as wide as the imagination of the teacher. It has no specific place in a curriculum, being capable of inclusion in any area where a simple picture is required. It obviously has relevance to a mathematical consideration of shape and to an artistic use of two colours to produce a pattern or an illustration where the child is not restricted by a lack of manipulative skills.

The concept keyboard version of the program functions in the same way using the overlay plan shown on the centre pages (at A4 size).

## FRONT PAGE EXTRA

<b>SUBJECT AREA</b>	Language arts
<b>FILE NAME</b>	FPAGEX
<b>MACHINE</b>	Acorn BBC B, RML 480Z
<b>AUTHOR</b>	Roger Keeling, from an original program written by Howard Sayles with extensions suggested by a group of Nottinghamshire teachers
<b>PROGRAMMERS</b>	Mark Ravenscroft and Paul Hollingsworth, Newman College
<b>AGE RANGE</b>	Top infants to top juniors

This program is an expanded version of *FRONT PAGE* which appeared on MAPE Tape II. *FRONT PAGE EXTRA* allows the user to create pages with differing layouts.

Page 1: Similar to *FRONT PAGE*, but without the drawing routine. Two columns for the page. Subheadings allowed together with the facility to move an adjustable picture frame to a position in either/both column/s.

Page 2: Similar to the above but without the two column width heading.

Page 3: Similar to Page 2 but with three columns per page.

This program allows a page to be stored on disc, to be retrieved and amended, and to be printed out. Saving to disc is done automatically to avoid accidental erasure of text.

### Using the program

Initially the user is presented with the following menu:

1. Construct a front page
2. Construct a second page
3. Construct a third page
4. Continue constructing a page
5. Display an old page
6. Print out page(s)

An option is selected when the appropriate number is typed in. If you choose Option 1, 2 or 3 you will be prompted to give your page a file name (maximum 7 letters (BBC), 8 letters (RML)). After the page name has been entered, press RETURN and the screen will display the page.

#### *Constructing a front page*

Select Option 1 from the menu. The screen will display the empty page.

#### *Sequence of activities*

You will be given the following prompts:

Type in the name of your newspaper, then press RETURN

TITLE > . . . . . (20 characters)

Once the title has been entered it will be displayed.

Type in the date, then press RETURN

DATE > . . . . . (20 characters)

The date can take the following forms: 19th October 1985, 15/10/85 and any others you invent.

Type in the headline, then press RETURN

HEADLINE > . . . . . (38 characters)

Type in the price of your newspaper, then press RETURN

PRICE > . . . (3 characters)

The price can be in any currency you wish.

At any time *before* you press RETURN, the DELETE key will undo what you have typed. Once you press RETURN no changes can be made until the end of the sequence, when you get the prompt:

Do you wish to change anything (Y/N)?

If you type Y:

Enter 1 for TITLE, 2 for the DATE, 3 for the PRICE, 4 for the HEADLINE.

Whichever you choose to change, the entire line is deleted, the original prompt returns and you retype that item.

You will be given the option of making further changes until

Do you want to change anything (Y/N)?

and you type N

When you type N a cursor will appear at the top of the left hand column and the following keys can be used:

BBC		RML
f0	to finish	f1
f1	for subheading	f2
f2	to toggle text	f3
f3	to draw a frame	f4

#### *Subheadings*

Press f1 (BBC) or f2 (RML) and you will be prompted:

SUBHEADING > . . . . . (19 characters)

The current text size will also be displayed. Press f2 (BBC) or f3 (RML) to toggle between small and large text.

Press RETURN after typing the subheading. The text will be displayed and the message:

Are you sure Y/N

If you type Y followed by RETURN the subheading is fixed. If you type N followed by RETURN the subheading is cleared and you can type another.

If you have chosen a subheading you must type something. You may have several subheadings, one under the other.

f2 (BBC) or f3 (RML) allows the print size of the subheadings to be altered. It does not affect the rest of the text.

f3 (BBC) or f4 (RML) causes a rectangular box (for an illustration) to appear on the screen. The top left hand corner of the box is at the position of the cursor. Press the down arrow key to increase the size of the box, and the up arrow key to reduce it. The box cannot be extended beyond the width of one text column.

Press f3 (BBC) or f4 (RML) again and the box becomes fixed.

#### *To enter text*

Whether you have a subheading or not, or an illustration or not, to enter text just start typing. Do not press RETURN at the end of a line; the text will automatically be justified as you type. If you make an error you can use DELETE to undo all the text back to the error, or you can edit the text later. When you have finished a paragraph press RETURN.

When you get to the bottom of the first column the cursor will move, as you type, to the top of the second column.

When you have finished entering text press f0 (f1 on RML). BBC only – Press RETURN to move the cursor to a clear line first before typing f0.

The disc drive will click on, your page will be saved under the name you provided at the start, and you will be given the opportunity to edit your page via the following prompts:

Use the ARROW KEYS to move to the mistake.

Press RETURN to finish editing.

You can use the arrow keys to move the cursor to any mistyped letter or word. You can either type the correct letter on top of the incorrect letter, or use the DELETE key to erase the letter and type in the new letter.

When you edit, the number of characters on the line is fixed. You cannot replace a short word with a longer word. The text does not justify as you edit.

When you have finished editing, press RETURN. You will be given the option to continue, (Are you sure Y/N), otherwise the new version of the page will be saved.

#### *BBC only*

You will then be prompted:

Type in your advertisement, then press RETURN

ADVERTISEMENT >.....  
(35 characters)

You must type something, but it can be a pattern of letters.

#### *BBC and RML*

The page is saved once again under the same filename as the previous version and the screen displays the main menu.

#### *Constructing a second page*

In essence this page is the same as the front page; the user is allowed two columns, each of 38 characters and 17 lines (RML 16 lines), but less information is displayed at the head of the page.

This time you give the page a name under which it will be saved, and are prompted only for the headline and the date.

Entering text follows the same rules as it does on the front page.

#### *Construct a third page*

This page prompts for a name under which it will be saved, the title and the date.

The user has three columns of 25 characters and 22 lines (RML 20) each.

### *Continue constructing a page*

This option allows you to reload a previously constructed page, to work on it, and then save it again. You will be prompted for the name of the page; type it in and press RETURN. The page will be displayed and you can continue working on it. NB: BBC only, if you had previously written an advertisement it will be wiped from the page because the editing commands are displayed in that space. The advertisement will have to be entered again.

### *Display a page*

This allows the user to see, but not to alter, a previously constructed page. Press the SPACEBAR to end the display.

### *Print out page(s)*

This option will not work unless the micro is attached to a printer.

### *BBC*

Additionally the printer must be initialised before you load the *FRONT PAGE EXTRA* program. Type the appropriate commands then, to load the program, type \*EXEC !BOOT and the main menu will be displayed.

### *RML*

A Parallel Epson printer is initialised from within the program. If you wish to use a different printer then change Line 30 and re-save the program.

```
30 PRINTER 4,4:PR = 1
```

PR must be set at 1 for an Epson and Epson type printer. PR must be set at 0 for an Anadex printer.

### *BBC and RML*

Once you have connected the printer, and initialised it, if necessary, you will be prompted to type in the names of the page(s) that are to be printed out. Press RETURN to finish the sequence and the printer will spring into action.

### **Notes**

1. You cannot enter text in the illustration box. This program does not have the facility for creating illustrations. Once you have created an illustration box, and fixed it, it cannot be removed.

### *2. The ESCAPE key*

#### *BBC*

If you press ESCAPE before the headlines etc. have been entered the page will be lost. The name of the page will appear on the disc catalogue but if you try and load that page the program will crash.

If you press ESCAPE when you are entering the main body of the text the page will be saved and the main menu will be displayed.

#### *RML*

The ESCAPE key is disabled, i.e. pressing it has no effect.

### *3. Saving pages*

#### *BBC*

If you try to save a page on a disc which has a full catalogue you will get the message 'CAT FULL' and the program will end.

#### *RML*

If you try to save a page and the disc is full you will get the message 'Disc full, insert another disc and press RETURN' but the page will remain on the screen, thus if you put another disc in the drive the page will be saved.

# PICTURE BUILDER

**SUBJECT AREA** To illustrate the creative potential available when children have the facility to manipulate shape

**FILE NAME** PBUILD

**AUTHOR** Roger Keeling, Newman College

**AGE RANGE** Upper infants and juniors

**NOTE** This program has been donated to MAPE by Collins/Hill McGibbon (from whom a BBC version is available).

There are five basic shapes and a straight line to work with. You can make each of the five shapes larger or smaller. They can be squashed or stretched sideways. You can rotate them to different angles in multiples of 45° and move them up and down, left and right. Finally, you can colour them in. Once you have coloured a shape, you can do no more with it. You must choose another shape. You can also label your pictures. Pictures can be stored to disc, and later they can be put back on the screen for you to have another look at or for you to carry on working with.

If you want to draw something, you first need to observe what shape it has. Does it have straight or curved sides? Is it long or short, fat or thin? Many objects are really made up of a few basic shapes added together in different ways. Your first task is to experiment with how these simple shapes may be combined.

## Program Notes

After you have loaded the program choose your colours.

Begin by selecting the background colour. Press SPACE BAR repeatedly until the small arrow is pointing to the colour you would like as your background. Now press RETURN. The colour selected will fill the box labelled 'background'. Select the three foreground colours by pressing SPACE BAR to choose the colour and RETURN to confirm. Press C when you are ready to continue.

## The key strokes

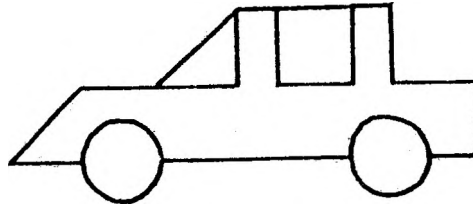
These will appear on the screen after the colours have been selected. They are also marked on the keyboard overlay (see overlays 1 & 2 on removable centre pages) which should be placed over the function keys.

	480Z
Move left	←
Move right	→
Move up	↑
Move down	↓
Colour	F1
Turn	F2
Bigger	F3
Smaller	F4
Stretch	X
Squash	Z

Pressing ESCAPE at any time, except when the printer is operating, ends the program. Holding down CONTROL and pressing C will clear the design from the screen.

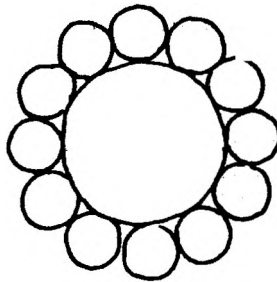
You can use circles, triangles, lines and squares to build a car (see below). Press SPACE BAR until the arrow reaches a triangle. Then press RETURN. Press the arrow keys to take the triangle to where you want it.

Now press colour (F1), and then SPACE BAR until the arrow reaches your chosen colour. Press RETURN. Now do the same with your next shape.



### *Bigger and Smaller*

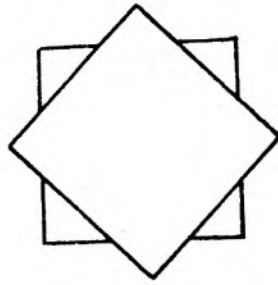
To make the flower, take a circle and press bigger (F3) a few times. Colour it. For the petals, take another circle and press smaller (F4). Move the small circle to the edge of the larger one. Colour it a different colour. Repeat this for all the petals.



### *Turning shapes*

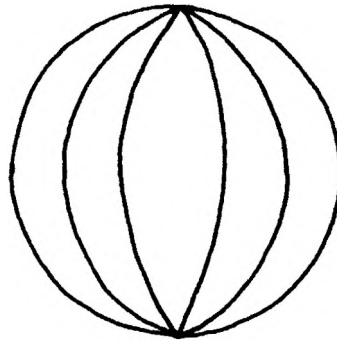
Take a square. Make it larger and colour it. Take another square and make it as big as the first. Press turn once (F2). Colour it (F1). Turn will always rotate a shape by 45 degrees.





### *Stretch and squash*

Take a large circle and stretch it a little (X). Colour it. Take a second circle and squash it (Z). Colour it using a different colour. Take a third circle and squash it more than the last. Colour it. Repeat this until the ball is complete.



### *Cutting away*

You can make any shape you want by partly covering one shape with a second, then colouring the second one in the background colour. This will make it disappear, and so 'rub out' part of the first shape.

Before you save a picture you may wish to label it. Use the SPACE BAR to point the arrow at the word LABEL in the top right-hand corner of the screen. Press RETURN and then type in your label in the space provided at the bottom of the screen. Again press RETURN then move the cross around the screen, as you would with a shape, until it is correctly positioned. Press RETURN and your label will be printed with the first letter at the position of the cross. You can use the label command to print other keyboard characters on the screen as part of your design. For example, you could use \*'s as snow flakes. However, you can not colour, rotate, or distort a label.

### **Saving a picture**

1. Type S.
2. Answer Y to the check question 'Are you sure?' and press RETURN.

3. Type in the name of the design using no more than six letters.
4. Insert a blank, formatted disc and press RETURN.
5. The message “\*Saving picture\*” will be displayed.

#### **Loading a picture**

1. Type L.
2. Answer Y to the check question ‘Are you sure?’ and press RETURN.
3. Type in the name of the design you wish to load and press RETURN.
4. The message “\*Loading picture\*” will be displayed.
5. As the design is loaded it will appear on the screen.

#### **Drawing a picture**

The program initialises an Epson printer. Consult your manual for instructions about how to connect it to your computer.

1. Type ‘D’.
2. Answer ‘Y’ to the check question ‘Are you sure?’
3. Check that the printer is connected and switched on.
4. The printer will begin its task. Printing a design takes a considerable amount of time (5–10 mins). Once the picture has been printed out the ‘drawing board’ reappears on the computer.

## **MOUSEY! MOUSEY!**

<b>SUBJECT AREA</b>	Interactive search strategy game for infants.
<b>TITLE</b>	MOUSEY.
<b>AUTHOR</b>	Don Walton, Houghton C.P. School, Houghton, Huntingdon, Cambs.
<b>AGE RANGE</b>	5+, for individuals or pairs.
<b>OBJECTIVES</b>	To reinforce the words UP, DOWN, RIGHT, LEFT and their meanings. To develop efficient search strategies and to use the available information to achieve this end.

Mousey! Mousey! was designed to reinforce the meaning of UP, DOWN, LEFT and RIGHT. As it developed it became apparent that there were good, bad and indifferent strategies for finding the mice, so a scoring system was devised to encourage children to develop their own personal methods of searching.

The program is very easy to use and the first screen display gives the necessary instructions about which key to press for what movement.

The next screen display shows information regarding the whereabouts of the four mice and a white square somewhere on the search area. This is the cheese box and as soon as U, D, L, or R are pressed the cheese will reveal itself and move about, under instructions from the user, the idea being to tempt the mice from their hiding places.

Note that on every move of the cheese the information display updates itself about the position of each mouse, relative to the cheese. Where you get a row of stars and a direction then the mouse is in that direction and the other direction is no longer relevant (for example, LEFT \*\*\*\* means the mouse is directly to the left, or \*\*\*\* UP means the mouse is directly upwards).

A score is kept of the number of moves taken to find the mice. When all four mice have been caught the program requests a name. After the user has typed this in, the next display shows a score sheet for the best eight attempts during that session so that the children can compare their scores with others.

Consistent scores of around 100 moves show a good search strategy. Scores significantly less than this include an element of luck combined with good search strategy. Children may need some help on the idea of low scores being best.

