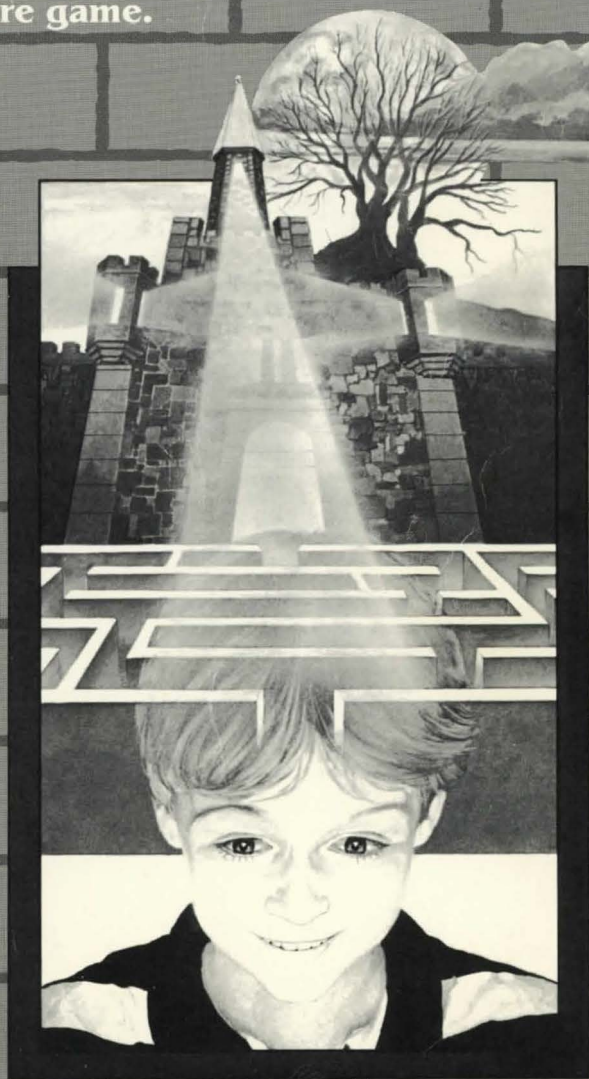


# MIND • CASTLE™ I

An exciting, motivating  
and challenging logic  
adventure game.





# Mind Castle™ I

<b>CONTENTS:</b>	<b>Page</b>
Program Description .....	2
Running the Program .....	3
Program Justification .....	4
Field Study .....	5
Answers to Puzzles .....	6
Additional Hints .....	7
Teaching Strategies .....	11
Floor Plans for Castle.....	12
Student Management System.....	20, 21
Hardware Usage.....	18, 21
References: Logic .....	22
References: Victoriana .....	24

## **Program Developers:**

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Only the highest quality educational design and programming have been used in this program. If, however, you receive a program damaged in shipment or production, return it within 30 days for a free replacement.

## PROGRAM DESCRIPTION

*MIND CASTLE I* is an entertaining adventure game which takes place within a Victorian Castle. The student "slips" into the Castle and must solve puzzles in order to reach the tower where there purportedly is a treasure.

The Mind Castle programs were designed to motivate and reinforce reasoning skills taught in MCE's instructional programs *THE 4TH R: REASONING* and *REASONING: THE LOGICAL PROCESS*. The Castle programs can, however, be used independent of logic instruction.

Logic/reasoning problems require patience, planning and strategy. Students must read carefully, think critically, and organize information in order to succeed in Mind Castle I. We have attempted to gradually increase the complexity of puzzles as the student advances within the program.

The cross-section of puzzles and problems selected for use in the Castle programs includes: conceptual problems, word problems, math problems, problems of sequencing, and deductive reasoning. We have attempted to include puzzles which are most appropriate for computer presentation. Most puzzles in this program do not require the use of pencil and paper; most require little formal math. We've tried when possible to use puzzles considered to be graphically appealing.

Some of the puzzles used in this program have been in existence for generations; most are original. The list of references includes many excellent books for those who would like to continue puzzling.

This program is intended for use by elementary and junior high age students with a comparable interest level and an approximate reading level of 3rd to 4th grade. It may also be effectively used by older individuals who need to develop logic/reasoning skills.

While *MIND CASTLE I* was designed to be enjoyed by an individual student, it may be run by a group of students in the classroom. Group participation will likely encourage students to learn from each other.

This program can be combined with *MIND CASTLE II* and the two logic instructional programs (*THE 4TH R: REASONING* and *REASONING: THE LOGICAL PROCESS*) for comprehensive logic instruction.

## RUNNING THE PROGRAM

To begin an MCE program, you must first insert the disk into the disk drive with the label side up. Next, turn on your monitor and then the computer. Your MCE program will automatically load into the machine and begin to display information on the monitor. When parts of the program are loading, the light on the disk drive will be on. Because of the extensive memory involved in the writing of MCE programs, the loading light will go on periodically. Therefore, **never take the disk from the disk drive while running any MCE program.**

*MIND CASTLE I* requires that the student:

Press the return key after all inputs of answers or directions.

As the student enters a room of the castle, the direction he/she is facing is displayed in the lower right corner of the screen. It is possible to:

1. Ask to see a puzzle by typing P or Puzzle (followed by pressing the return key).
2. Go out a door to the North, South, East, or West (depending on the floor plan) by typing the appropriate direction (N, S, E, or W followed by the return key).
3. Go downstairs by typing D or Down on the first through tower floors in rooms where the stairs are located.
4. Go upstairs by typing U or Up in the room where stairs go to the next floor — providing the required number of puzzles has been solved.

When presented with a puzzle, it is possible to obtain help by typing H or Hint on the puzzle question. Any key typed will return from the hint to the puzzle.

The program counts the number of puzzles solved per floor. The number required to go up increases with each Castle floor.

Following floor plans may help your students move within the Castle. For that reason, the plans have been included and may be reproduced as needed.

## **PROGRAM JUSTIFICATION**

MCE developed the logic/reasoning programs after identifying a need for logic instruction.

National assessments of students' academic performance continue to indicate a need to improve problem-solving and reasoning skills and instill in students confidence in approaching and solving problems.

In the past, the approach to teaching problem-solving has been segmented by the various instructional disciplines. Math taught story or word problems. Science taught logical thinking and experimentation. Programs for fine arts emphasized creativity. Language arts often taught critical reasoning skills.

With the logic series, we have attempted to cross curricular barriers to stimulate logical thinking and problem-solving in ways readily translated to any subject area.

We have done extensive research in order to develop the logic programs in such a way as to nurture and stimulate high-level thinking skills while making good use of the computer.

## FIELD STUDY

MCE has extensively field-tested this *MIND CASTLE* program. This study has included pretests of information (including puzzles) as well as tests of the finished product.

We have had very positive feedback from students, teachers, and administrators.

We highly value the information received from our field study. As always, we were able to improve our program based on comments from study participants.

We would appreciate your comments, too, and have included an evaluation form in this package for your use. Please take a moment to let us know what you think of *MIND CASTLE I*.

## ANSWERS TO PUZZLES

### BASEMENT

- \* Coal Bin: one
- Furnace Room: fifth floor
- Main Cellar Room: an "S"
- Wine Cellar: 16
- \* Laundry Room: nine

### FIRST FLOOR

- Kitchen: U
- \* Scullery: no
- \* Breakfast Room: breakfast and lunch
- Parlor: C
- Main Entrance Hall: V (5)
- Dining Room: B

### SECOND FLOOR

- Hall: C
- Game Room: double cross(er)
- \* Ballroom: Union
- Bath: it
- Trophy Room: one
- Music Room: A & E
- Theater: any word starting with J

### THIRD FLOOR

- \* West Hall: noon
- Butler's Room: T (ten)
- \* Upstairs Maid's Room: nine
- Downstairs Maid's Room: wrong
- East Hall: 76
- Guest Room: brown
- Housekeeper's Room: all (or twelve)
- Sitting Room: 5 days

### FOURTH FLOOR

- \* Playroom: Susan
- Girls' Room: yes
- \* Tom's Room: 90 days
- \* East Hall: south
- \* Schoolroom: seven
- \* Sitting Room: 15
- \* Guest Room: Civil War (or War Between the States)
- Bath: three
- Nanny's Room: odds and ends

### FIFTH FLOOR

- Gallery: C
- \* Master Bedroom: (His) son
- \* Dressing Room: 39
- Study: any word starting with "G"
- \* Billiard Room: 55 games
- \* Balcony: 100 yards
- \* Sitting Room: C
- \* Greenhouse: \$1.00
- Bath: one

\*For further explanation of these puzzles, see "Additional Hints" section.



## ADDITIONAL HINTS

**COAL BIN:** This is a conceptual problem. Putting piles of coal together will result in one (large) pile.

**LAUNDRY ROOM:** This problem asks the student to pay careful attention to the words "all but." All but nine were put away so there are nine left!

**SCULLERY:** The syllogism given in this puzzle is an example of invalid deductive reasoning. Since the "creature" could be any animal with feathers, the conclusion is not valid.

**BREAKFAST ROOM:** Portmanteau words are formed by combining two words. Lewis Carroll coined the word "chortle" from "chuckle" and "snort". Portmanteau words are fun and provide an interesting study of word origins. Consider:

binary + digit = bit

flame + glare = flare

television + marathon = telethon

transmitter + resistor = transistor

**BALLROOM:** There are many puzzles involving liars and truth-tellers. They require students to use "if-then" (deductive) logic. In this puzzle, it is impossible for someone from Marango to admit it since, were he really from Marango, he would lie. Consequently, the statement is false and Tom cannot be from Marango. That means that Tom must be from Union (and this is one of those times he is lying). Carried further, people from Cal always tell the truth. Rod is from Cal. It must be that Jim is from Marango.

**WEST HALL (third floor):** An enjoyable study of words can be made by having students discover palindromes. An entire sentence can be a palindrome as in James Thurber's:

"a man, a plan, a canal, Panama."

**UPSTAIRS MAID'S ROOM:** Careful readers will attend to the fact that, if the maid had sisters (plural), there had to be at least three daughters in the family. If there are "twice as many sons," there will be at least six boys. Therefore, the smallest possible number of children is nine.

**PLAYROOM:** This problem requires the student to use deductive reasoning. Students who have difficulty with this type of problem, will benefit from using a chart:

	Tom	Molly	Susan
chair	Molly's		
puzzle	Susan's		

The puzzle tells us that the one who sits in Susan's chair is doing Molly's puzzle. This must be Tom. The next step is to use reasoning to fill in the chart. (e.g., Molly must be doing Tom's puzzle. She can't be doing her own and Tom is doing Susan's.) When the chart is completed, answer the question asked: Who is sitting in Tom's chair?

**TOM'S ROOM:** Puzzles often ask the reader to work forward from the end. Such is the case here. If the number of mice double every ten days and the cage is full in 100 days, then find "one-half full" by moving forward to the last time the mice doubled (ninety days).

**EAST HALL:** We know that two children tell the truth. It follows that the two who are in agreement must be the truth-tellers. Tom says, "Your room is to the south." Molly says, "It's not to the north." These two statements agree. The room must be to the south.

**SCHOOLROOM:** People once believed that magic squares had mysterious powers which could bring good health. When the numbers of a magic square are added vertically, horizontally, or diagonally, the total is the same each way. One of the simplest magic squares is a  $3 \times 3$  figure:

8	1	6
3	5	7
4	9	2

By changing one number, you can make a magic square puzzle. By adding (subtracting, multiplying, or dividing) each number in the square by the same number, you will have a new magic square.



**BILLIARD ROOM:** Most elementary students will not be expected to find the answer to this puzzle using an algebraic formula. They can easily find the answer, however, by first finding a pattern. Two players will play one game. Three players will play three games. Using paper and pencil, game pieces (fingers!), or reasoning, we can see a pattern emerging:

<u>Number of Players:</u>	<u>Number of Games:</u>
2	1
3	3
4	6

From the first three entries, we can see that if you add the number of players and the number of games on any step, you will find the number of games in the next step:

2	1
3	3
4	6 (4 + 6 = 10)
5	10
6	15
7	21
8	28
9	36
10	45
11	55

**BALCONY:** This puzzler asks the student to discover a relationship between distance and the number of vowels in words. This is an example of a problem requiring flexible thinking — a skill frequently lost to adults, but one sorely needed to reason effectively and creatively.

**GREENHOUSE:** The potted orchid cost \$6.00. The plant cost \$4.00 more than the cost of the pot. Although simple algebra can be used, trial and error will suffice here. The student's first answer may be that the pot cost \$2.00.

You may prove this answer untrue since the plant would have to cost \$6.00 (\$4.00 more than the \$2.00 pot) and the potted plant would total \$8.00. This does not fit with the puzzle.

$$\text{Plant} + \text{Pot} = \text{Potted Plant} (\$6.00)$$

Substituting (pot plus \$4.00) for plant or using trial and error will result in the pot costing \$1.00. The plant is \$4.00 more (or \$5.00) and the potted orchid cost \$6.00.

## TEACHING STRATEGIES

*MIND CASTLE I* can be run individually or in small groups with learners discussing the puzzles prior to the input of an answer. As the background and ability of learners will vary, it is impossible to estimate the time needed to complete the program.

This program was designed as application to follow instruction in *THE 4TH R: REASONING* or *REASONING: THE LOGICAL PROCESS*. It is suggested that, should students have difficulty with the puzzles in *MIND CASTLE I*, they view (or review) logic instruction.

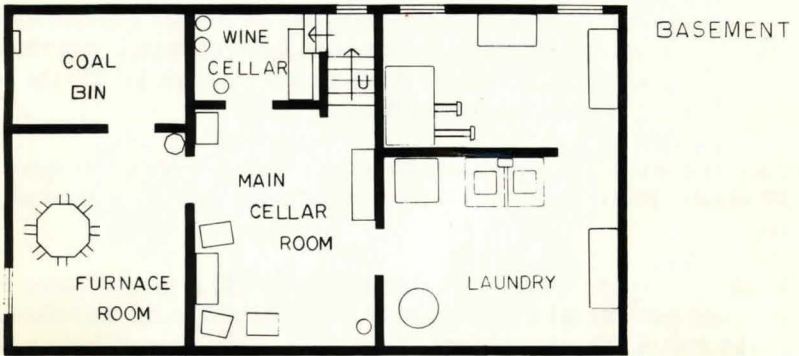
Prior to the student's entering the program, the instructor may wish to present a pretest of reasoning problems. A posttest of problems could follow the computer program.

Student growth in the area of reasoning can be further assessed by asking students to analyze magazine or television advertisements. Are the claims logical? What are the premises? What are the conclusions? Do the conclusions logically follow from the premises?

Such analyses can be expanded to include current events, decisions made by others, political speeches, scientific findings, and mathematical analyses.

Students who are successful in this *MIND CASTLE* program may wish to continue puzzling with *MIND CASTLE II*. Additionally, the reference list at the end of this manual includes many good sources of logic puzzles.

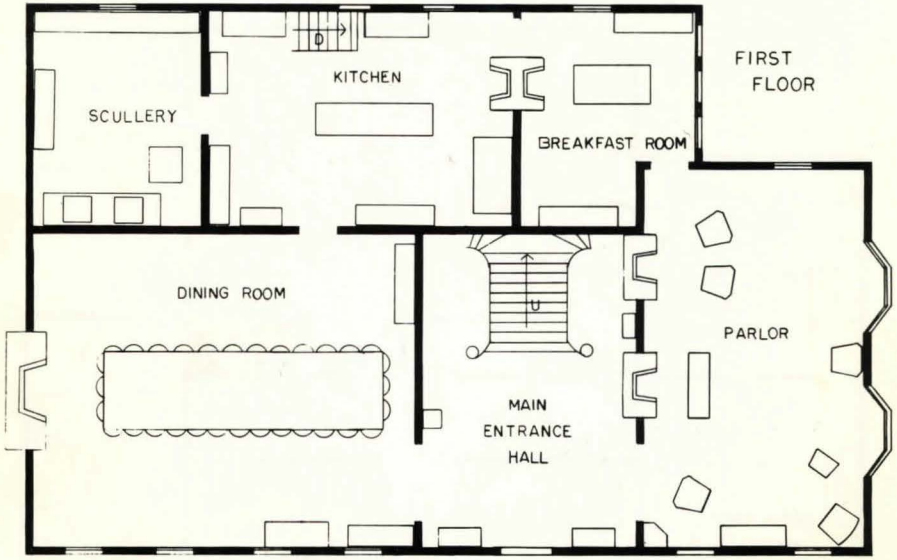
The logic series is an ideal complement to programs on decision making, consumer awareness, problem solving, and scientific exploration.



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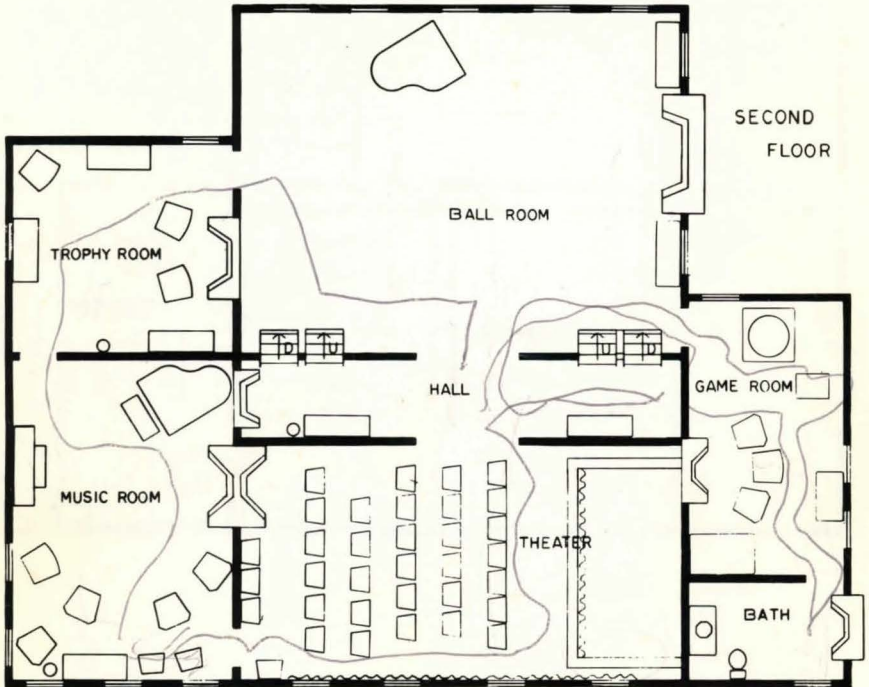


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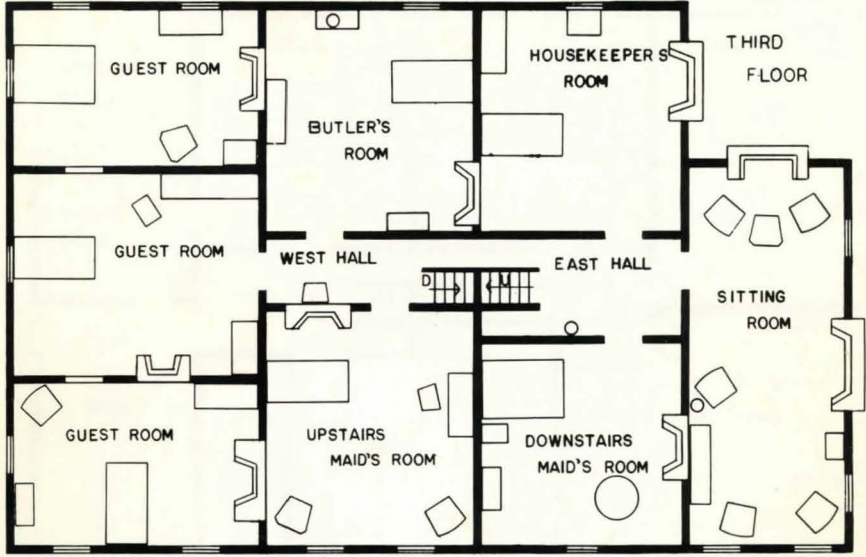
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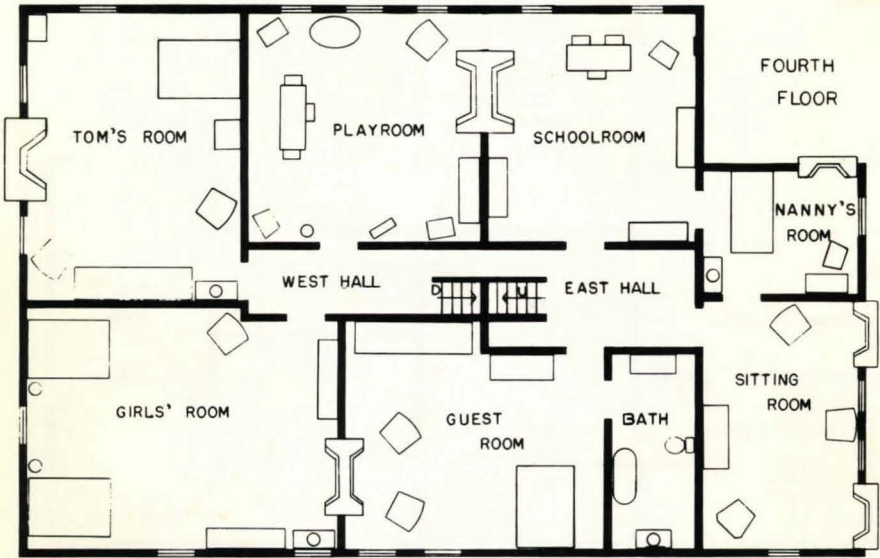


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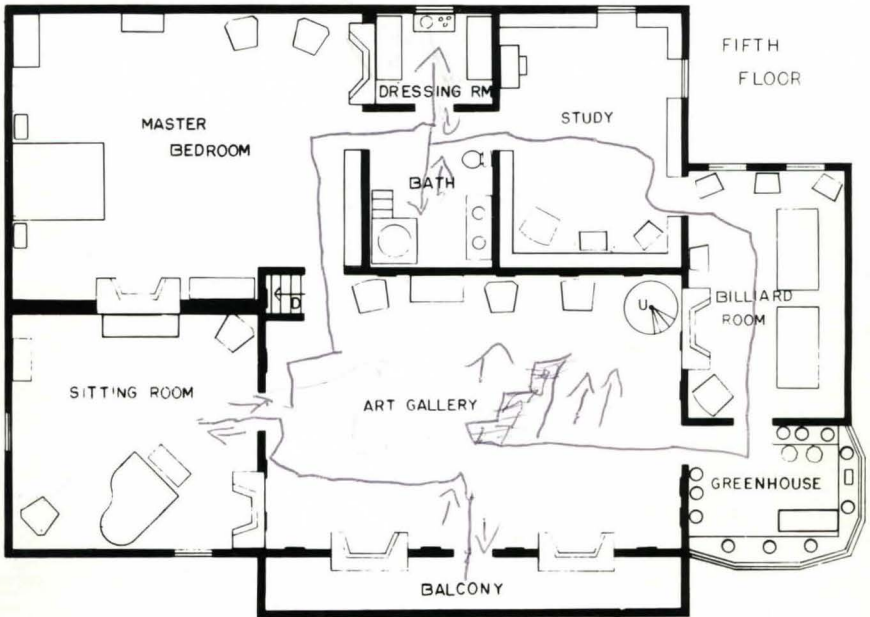
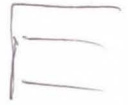
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## **HARDWARE USAGE FOR APPLE**

### **THE MICROCOMPUTER**

To present MCE programs to learners, the following hardware is required:

1. An Apple II (with Applesoft in ROM or on language card), Apple II+, Apple IIe, or Apple IIc — 48k minimum.
2. Any size video monitor or regular television with the appropriate adapter — although color displays are preferable.
3. One disk drive.

### **THE MONITOR OR TV**

MCE programs may be run using either a video monitor or TV, provided the appropriate cables and adapters are used. A video monitor will usually provide a better picture than the regular TV. A black and white monitor may be used, but MCE programs are most effective in color. It is usually recommended that the display unit be switched on before turning on the microcomputer.

### **THE DISK DRIVE**

MCE programs are stored on 5¼-inch floppy disks. The information contained on a disk is transferred into the microcomputer periodically by means of a disk drive.

### **CABLES AND LINKAGE**

The Apple microcomputer comes with introductory information to assist in setting up and operating the equipment. Make sure the cables and linkages between all components are the ones specified for the machine and are properly connected.

### **PROGRAM SECURITY**

All MCE program disks are copyrighted and secured using a number of security systems. Any attempt to copy these disks will be an infringement of copyright law and may destroy the program.

## RECALL PROCEDURE FOR APPLE

- A. Boot the *Mind Castle I*<sup>TM</sup> program disk.

On the first frame you will see:

“You have been warned,  
but long morning shadows  
draw you to the dark castle.”

- B. If you wish to bypass the directions, type the letter S. This will take you to the Coal Bin. If you wish to read the directions press Return.
- C. Once in the Coal Bin, type RECALL and press Return.
- D. Follow the directions as they appear on the screen.

These directions are:

1. Take out the program disk.
2. Turn the disk over and insert in the disk drive.
3. Press a key.
4. Type your number. (Press return)
5. Turn the disk over and insert in drive.

**CAUTION:** Make sure that each student types his/her own number. If the student types another student's number he/she will go to that location instead of his/her own. If the student types an unknown number the computer will respond with:

You haven't saved with that number.  
Try a different number?

Type YES and the computer will ask for a new number.

Type NO and the computer will give directions for returning to the location you left when you typed recall. The directions are:

To return to the place  
where you left off,  
reinsert the program  
disk in the drive,  
then press return.

## STUDENT MANAGEMENT SYSTEM FOR APPLE

This student management system allows as many as 99 students to SAVE their present location and then RECALL that location upon returning to the computer and *Mind Castle I*<sup>TM</sup>.

### SAVE FUNCTION PROCEDURES FOR APPLE

While running the *Mind Castle I*<sup>TM</sup> program disk, the student may SAVE his/her location from any of the rooms or hallways.

To do so:

- A. Type SAVE and press Return.
- B. Follow the directions as they appear on the screen.
  1. Take out program disk.
  2. Turn the disk over and insert in the disk drive.
  3. Press a key.

Type a number from 1 to 99. (Press return)

**CAUTION:** Make sure that the student types his/her predetermined number. Typing another student's number will erase that location and replace it with the new location.

## **HARDWARE REQUIREMENTS FOR IBM**

1. An IBM PC (or compatible) with 512K minimum.
2. CGA graphics card with appropriate monitor.
3. One disk drive.

## **PROGRAM SECURITY**

All MCE program disks are copyrighted and secured using a number of security systems. Any attempt to copy these disks will be an infringement of copyright law and may destroy the program.

## **TO START**

To begin *MIND CASTLE*, you must first have MS-DOS or PC-DOS running on your machine. To do this, insert your DOS disk into drive A (label side up) and turn on your machine. After the boot process is finished, you will probably be asked for the date and time. You may enter the correct values for these questions or just press ENTER to skip over them (they are not needed for your program to run). You will then be presented with the DOS prompt "A>" at the left side of the screen. Remove the DOS disk and insert your *MIND CASTLE* disk. Type HELLO, and the program will automatically load and run. If you want to bypass the directions, type the letter "S" on the first frame. This will let you "skip" to the Coal Bin. If you want to read the directions, press Enter.

## **STUDENT MANAGEMENT SYSTEM FOR IBM**

This student management system allows as many as 99 students to SAVE their present location and then RECALL that location upon returning to the *MIND CASTLE* program. If you use the SAVE feature **DON'T** write-protect your disk!

### **SAVE PROCEDURE**

While running *MIND CASTLE*, you may SAVE your location in any room or hallway:

1. Type SAVE, and press Enter.
2. Type a number from 1-99, and press Enter. You will exit to DOS.

**CAUTION:** Make sure each student types their own predetermined number. Typing another student's number will erase that location and replace it with the new location.

### **RECALL PROCEDURE**

When ready to return to where you left off, type HELLO at "A>". Next:

1. You may skip to the first room (Coal Bin) by typing "S" on the Title Frame.
2. From the Coal Bin (or any room), type RECALL, and press Enter.
3. Type your number, and press Enter. You'll go to the room where you last SAVED your position.

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