

MIND • CASTLE™ II

An exciting, motivating
and challenging logic
adventure game.



Mind Castle™ II

CONTENTS:

	Page
Program Description	2
Running the Program	3
Program Justification	4
Field Study	5
Answers to Puzzles	6
Additional Hints	7
Floor Plans for Castle.....	16
Teaching Strategies	22
Student Management System.....	24, 26
Hardware Usage.....	23, 26
References: Logic	27
References: Victoriana	28

Program Developers:

Programmer	Frank G. Andrews
Writer	Connie C. Ouding
Artist	William R. Pensyl

This product is copyrighted and all rights are reserved by MCE, a division of Lawrence Productions, Inc. The distribution and sale of this product are intended for the use of the original purchaser only and for use only on the computer system specified. Copying, duplicating, selling or otherwise distributing this product without the express written permission of Lawrence Productions, Inc. are violations of U.S. Copyright Law and are hereby expressly forbidden. ©Copyright renewed 1991 by Lawrence Productions, Inc. All rights reserved. Printed in the U.S.A.

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

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.

MIND CASTLE II is an educational 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.

Logic/reasoning problems require patience, planning and strategy. Students must read carefully, think critically, and organize information in order to succeed in Mind Castle II. 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 secondary students and adults although younger students who are advanced, have been successful in *MIND CASTLE I*, or who are adept at reasoning problems can effectively use this program.

While *MIND CASTLE II* 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 I* 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 II 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' 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 the 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 II*.

ANSWERS TO PUZZLES

BASEMENT

- * Coal Bin: blot
- * Wine Cellar: 110 (pounds)
- Furnace Room:
41 (fireplaces)
- * Laundry Room: 2 (times)
or twice
- * Main Cellar Room: 8

FIRST FLOOR

- * Kitchen: \$1.25
- Scullery: any word starting with G
- Drawing Room: A & B
- * Dining Hall: 26 (guests)
- Supper Room: (deck of) cards
- Entrance Hall: B

SECOND FLOOR

- * Hall: 14
- * Game Room: UL (upper
left corner)
- * Ballroom: Rick
- * Trophy Room: 24
- * Bath: 6
- * Music Room: 76
- Theater: Captain Hook

THIRD FLOOR

- * West Hall: 20
- * Butler's Room: 18
- * Housekeeper's Room: 129
- * Upstairs Maid's Room: 20
- Downstairs Maid's Room: never
in a million years
- * East Hall: 20
- * Sitting Room: ham, milk,
and pie
- * Guest Room: 4 (inches)

FOURTH FLOOR

- West Hall: polite
- * Schoolroom: 87912
- * Playroom: 10
- * Tom's Room: 13
- Girls' Room: a marine band
- * Sitting Room: 16
- Nanny's Room: there's
no "E"
- * Guest Room: B & C
- Bath: dirty double crosser

FIFTH FLOOR

- * Gallery: 200 miles
- * Sitting Room: 296
- * Master's Study: 1760 yards
(1 mile)
- * Billiard Room: 16 (games)
- * Conservatory: 241.42 miles
- * Master Bedroom:
300 (pennies)
- Bath: tonic
- * Balcony: 40 miles

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

ADDITIONAL HINTS

COAL BIN: 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

WINE CELLAR: We are told that a single barrel weighs fifty-five pounds plus half of its weight. To find the total weight of a barrel, the use of elementary algebra will help. If we let X equal the weight of the barrel, then $\frac{1}{2}$ the weight is $\frac{1}{2}X$. Substituting in the puzzle we have:

$$\begin{aligned}X &= 55 + \frac{1}{2}X \\ \frac{1}{2}X &= 55 \\ X &= 110\end{aligned}$$

LAUNDRY ROOM: We are told that the two gear wheels rotate clockwise. While wheel A is stationary, wheel B revolves around wheel A. Using reasoning, if wheel A did not rotate, wheel B would move one time around its axis while revolving around A. Wheel A does rotate, however; and this rotation causes B to move two times about its axis. To show this, use coins (or gears).

MAIN CELLAR: Tommy said: “I am two times my age two years from now minus two times my age two years ago.” If the student is familiar with algebra, write the formula using X to equal Tom’s age:

$$\begin{aligned}X &= 2(X + 2) - 2(X - 2) \\ X &= 2X + 4 - 2X + 4 \\ X &= 8\end{aligned}$$

To check: Two times Tom’s age two years from now equals 20. “Two times my age two years ago” equals 12. Twenty minus 12 equals eight.

For students unfamiliar with algebra, try substituting ages in the puzzle until the correct age is found.

KITCHEN: The jar filled with candy cost \$5.50. The candy cost \$3.00 more than the cost of the jar. Although simple algebra can be used, trial and error will suffice here. The student's first answer may be that the jar cost \$2.50. You may prove this answer untrue since the candy would have to cost \$5.50 (\$3.00 more than the \$2.50 jar) and the jar filled with candy would total \$8.00. This does not fit with the puzzle. Using algebra, let X equal the cost of the jar:

$$\begin{aligned} \text{Jar} + \text{candy} &= \text{jar filled with candy } (\$5.50) \\ X + (X + 3) &= \$5.50 \\ 2X + 3 &= \$5.50 \\ 2X &= \$2.50 \\ X &= \$1.25 \end{aligned}$$

The cost of the jar is \$1.25. The candy cost three dollars more or \$4.25 and the filled jar cost \$5.50 (\$1.25 plus \$4.25).

DINING ROOM: To find out how many guests are coming to dinner, we must find the next number in the series. To do this, consider the spaces between the numbers.

$$\begin{array}{cccccc} \text{Series:} & 4, & & 6, & & 2, & & 10, & & -6 \\ \text{Spaces:} & & 2 & & -4 & & 8 & & -16 & \end{array}$$

We find that, while the size of the space doubles with each entry, the "direction" reverses each time. The next space will have to be +32. The next number in the series will then be 26.

HALL: The puzzle here looks more difficult than it is. After examining the relationship of the numbers, we find that the sum of two horizontally adjacent numbers is equal to the sum of two vertically adjacent numbers.

GAME ROOM: Highly-competitive students (and teachers) may have trouble with this puzzle as they are not accustomed to trying to lose. There is only one possible place to put your next X where your opponent will, regardless of how foolish his/her moves may be, be guaranteed of winning.

	O	
X		
O	O	X

If you were to play in the center, your opponent could conceivably place an “O” in the upper right corner – forcing you to win. This is true if you were to play in the middle right position too. Playing in the upper right corner does not guarantee your opponent will win. The “cat” could have that game. Should you play in the upper-left corner, however, your opponent cannot help but win — providing you play your following move as cleverly!

BALLROOM: The most logical way to solve this logic puzzle is to first make a chart and fill in the information given:

	Bob	Jim	Steve	Rick
archer			O	
painter	O	O	X	O
poet				
fisherman	O			

Steve “once practiced with the archer” so archery cannot be Steve’s hobby. Likewise, Bob cannot be the painter or the fisherman. “Rick hadn’t met either the painter or Jim” shows us that neither Jim nor Rick could be the painter. We now know that Steve is the painter. We can now find Bob’s hobby since he cannot be the archer.

Using only the information given in the puzzle you can continue reasoning to discover that Rick is the fisherman.

TROPHY ROOM: Using algebra, this relationship puzzle is relatively easy. Trial and error may be used to solve it, however. To find out how old the Master “is”, let his age equal X; his father’s age equal Y. “Twelve years ago, my father was 3 times as old as I was” can be expressed:

$$\begin{aligned}
 3(X-12) &= Y - 12 \\
 3X - 36 &= Y - 12 \\
 3X &= Y + 24
 \end{aligned}$$

“Today, he’s only 2 times as old as I am,” is expressed:

$$2X = Y$$

Now combine the two equations by substituting for Y to find the answer:

$$\begin{aligned}
 3X &= 2X + 24 \\
 X &= 24
 \end{aligned}$$

The Master is 24. His father is 48.

To check: Twelve years ago, the Master was 12. His father was 3 times as old or 36. Today, the father is twice the Master’s age.

BATH: The program hint to this puzzle explains that the petals together with the flower center form an equilateral triangle each angle of which is sixty degrees. As there are 360 degrees in a circle, you can form six such triangles about the flower center (with six petals).

MUSIC ROOM: To post any combination of four hymns whose numbers are to 500, we need: eight 0's (the hymns could be numbers 100, 200, 300, and 400), nine 1's, nine 2's, nine 3's, and nine 4's.

Since there cannot be a hymn numbered 555, we will need only eight 5's. Likewise, we need eight 7's and eight 8's. Neither the six nor the nine can be found in the hundreds place. There can be four hymns, however, which use a 6 or a 9 in the tens and ones places so we need to have eight of this number. Totaling the plates, we would need 76 to form any possible combination of hymns.

WEST HALL: The puzzle here gives us five products:

$$\begin{aligned}T \times H &= 6 \\H \times I &= 12 \\I \times N &= 20 \\N \times K &= 30 \\H \times N &= 15\end{aligned}$$

Note that the products 6, 12, and 15 have only one factor (in addition to 1 which will not work) in common. H must be equal to that factor of three. If H equals 3, then T is 2, I equals 4, and N equals 5. If N equals 5, then K is equal to 6. We can now add to solve the puzzle:

$$\begin{aligned}T + H + I + N + K &= ? \\2 + 3 + 4 + 5 + 6 &= 20\end{aligned}$$

BUTLER'S ROOM: The butler's five nephews are each three years older than his next younger brother. Let X equal the age of the youngest. The other boys will be X + 3, X + 6, X + 9, and X + 12 years old. We're also told that the age of the eldest is three times the age of the youngest. Then:

$$\begin{aligned}3X &= X + 12 \\2X &= 12 \\X &= 6\end{aligned}$$

The youngest boy is six. The eldest is 18 (three times the age of the youngest).

HOUSEKEEPER'S ROOM: As usual with a series of numbers, the first step should be to consider the spaces between each number:

Series: 9, 12, 21, 48
 Spaces: 3 9 27

Each consecutive space is three times as big as the one before it. The next space will be $27 \times 3 = 81$. The next number will then be $48 + 81 = 129$.

UPSTAIRS MAID'S ROOM: Again, discover the pattern to the spaces between series numbers. This problem, however, requires that you note the "direction" of the space:

Series: 8, 5, 9, 14, 11, 15,
 Spaces: -3 +4 +5 -3 +4

The next space will be +5; the next number, 20.

EAST HALL: A test of your ability to count methodically, this puzzle is easier solved mathematically. If you meet the conditions given, 20 triangles are formed no matter how you draw the lines. The number of groups of six lines taken 3 at a time is:

$$\frac{6 \times 5 \times 4}{3 \times 2 \times 1} = 20$$

SITTING ROOM: To solve this logic puzzle, you need to make a chart and fill in the information given:

First Name:	Nancy	Gregory	Joe	Nanny	Helen
Last Name:	Smith	Neal	Sharp	White	Wynn
Sandwich:	beef	ham	beef		ham
Drink:	tea	tea	coffee	coffee	milk
Dessert:	cake	cake	pudding	pie	pie

Simply by filling in the information given in the puzzle, we find the answer to the question, "What did Helen have?"

GUEST ROOM: Of course, the number of grooves per inch is irrelevant since the needle doesn't travel around the record but across it. This means it travels $6 - (1\frac{1}{2} + \frac{1}{2}) = 4$ inches. (Half of the diameter less half inner plus outer blank sections.)

SCHOOLROOM: The cryptogram given in this puzzle can be solved by proceeding logically and systematically. The student is told in the program that F equals 4.

$$\begin{array}{r} A B C D E \\ \times F \\ \hline E D C B A \end{array}$$

You can see that this is true by analyzing the problem. F times A gives a single digit product. F times E results in a product in which the ones place is A. There is only one combination of numbers to satisfy these conditions. F must equal 4, A must equal 2, and E then equals 8.

$$\begin{array}{r} A \qquad \qquad E \qquad \qquad 2 \qquad \qquad 8 \\ \times F \qquad \qquad \times 4 \\ \hline E \qquad \qquad A \qquad \qquad 8 \qquad \qquad 2 \end{array}$$

Now solve for B and D.

2 B D 8 We know that 4 times D plus the three carried is equal to ___B. Also, 4 times B plus ? = D. We've already used the number 2, so in order for D to be a one-digit number, B must be 1. Four (4) times D plus 3 equals ___1. Four (4) times 7 plus 3 equals 31; so D is 7.

2 1 C 7 8 Now solving for C: 4 times C plus 3 results in a product equal to 3C. Using the process of elimination, we find that C must equal 3, 5, 6, or 9 as these are the only numbers we haven't used. Three and five are too small. Four (4) times 9 plus 3 equals 39. C equals 9.

The product has been found:

$$\begin{array}{r} 21978 \\ \times 4 \\ \hline 87912 \end{array}$$

PLAYROOM: To find the number of mechanical toys that Molly owned, trial and error will suffice; but using a formula will be easier. Let M stand for toys Molly owned, S equals toys owned by Susan, and toys Tom owned is represented by T. We're told that:

$$\begin{aligned} M + S &= 22 \\ M + T &= 27 \\ M + T &= 25 \end{aligned}$$

Rewriting the first equation, we have:

$$S = 22 - M$$

Substituting this into the second equation, we have:

$$\begin{aligned}22 - M + T &= 27 \\ T &= 5 + M\end{aligned}$$

Now substituting in the last equation, gives us:

$$\begin{aligned}M + 5 + M &= 25 \\ 2M &= 20 \\ M &= 10\end{aligned}$$

TOM'S ROOM: This mathematical sequence is credited to the mathematician Leonardo Fibonacci, born in Pisa, Italy in 1175. Fibonacci, the story goes, was asked by a friend to predict the number of livestock he would have under certain conditions in 25 years. The series, carried to the 25th place, was thought to be the number of pair of livestock.

SITTING ROOM: "Tom is twice as old as Susan was when Tom was as old as Susan is." We're asked to find Tom's age. Three equations and three unknowns are needed to solve this puzzle mathematically. Let T be Tom's age at present. S is Susan's present age; and x is the time period between "was" and "is".

$$\begin{aligned}T &= 2(S-x) && \text{Tom is twice as old as Susan was} \\ T - x &= S && \text{when Tom was as old as Susan is.} \\ T + S &= 28 && \text{The sum of their ages is 28.}\end{aligned}$$

Now substitute the second equation into the first to eliminate the unknown "S".

$$\begin{aligned}T &= 2(S-x) \\ T &= 2(T-x-x) \\ T &= 2(T-2x) \\ T &= 4x\end{aligned}$$

To express Susan's age in terms of "x":

$$\begin{aligned}T &= 2(S-x) \\ 2S &= T + 2X \\ 2S &= S + x + 2x \\ 2S &= S + 3x \\ S &= 3x\end{aligned}$$

Now we can use the third equation:

$$\begin{aligned}T + S &= 28 \\ 4x + 3x &= 28 \\ x &= 4\end{aligned}$$

Tom's age is 4x or 16 years; Susan's is 3x or 12 years.

To check: Tom is twice as old as Susan was [16 is twice (12-4 = 8)] when Tom was as old as Susan is [Susan was eight when Tom was 12 (Susan's present age)]. Further, the sum of their ages (16 + 12) is 28.

GUEST ROOM: If we were to see the upper portion of the moon as in A and D, the sun would need to be in the sky. We are told that the paintings are of the night sky; therefore, A and D are impossible. Also, the star shining through the moon in D is impossible.

GALLERY: Once sorted out, this math problem is fairly easy. The men cross a 50-mile-wide lake with a combined speed of 10 miles per hour. It will take five hours for the two to meet. Meanwhile, the bee is constantly flying at 40 mph. Forty miles per hour for five hours will result in the bee having traveled 200 miles.

SITTING ROOM: As in many problems of this type, the answer is found by working backwards (from the end forward).

10 At point H, the last 10 people went ashore.
-2 × 2 = At G, half left and 2 boarded.
16
-4 × 2 = At F, fifty per cent left while 4 boarded.
24
-6 × 3 = At E, two thirds went ashore and 6 new ones came aboard.
54
-9 × 2 = At D, half left while 9 passengers boarded.
90
-10 × 2 = At C, half went ashore and 10 new ones were taken on.
160
-12 × 2 = At B, half of the passengers got off and 12 new ones came aboard.
296

At A, there were 296 passengers to start the trip.

MASTER'S STUDY: Sam Lloyd is credited with this well-known puzzler. When the boats meet the first time, they have together traveled the width of the river once. When they meet the second time, they have together crossed the river three times. The boat which started from the near side has traveled the width of the river plus 400 yards. This distance must equal three times the 720 yards it covered when the boats first met; hence:

$$\begin{aligned} X + 400 &= 3 \times 720 \\ X + 400 &= 2160 \\ X &= 1760 \end{aligned}$$

BILLIARD ROOM: There had to be 16 games. We are told that one player won 4 games. The other had a net profit of eight dollars. To have an eight dollar net profit, the second player had to have won 12 games since he paid the first player the \$4.00.

CONSERVATORY: When the messenger reaches the front of the (moving) army, the army has advanced X miles. The messenger has traveled $100 + X$ miles. The messenger then returns riding $100 + 2X$ miles in all. We get the formula:

$$X : 100 + X :: 100 - X : X$$

Carried out, this shows $X = 70.71$. The total distance traveled by the messenger is $100 + 2(70.71)$ miles or 241.42 miles.

MASTER BEDROOM: The Master had 5 half-dollars, 195 dimes and 300 pennies.

BALCONY: In this problem, the total distance traveled is equal to the distance traveled uphill at 10mph plus the distance traveled downhill at 20mph. Motion problems such as this are simplified by organizing the information in a chart with columns for rate, time, and distance:

	Rate	×	Time	=	Distance
uphill	10		X		$10X$
downhill	20		$3 - X$		$60 - 20X$

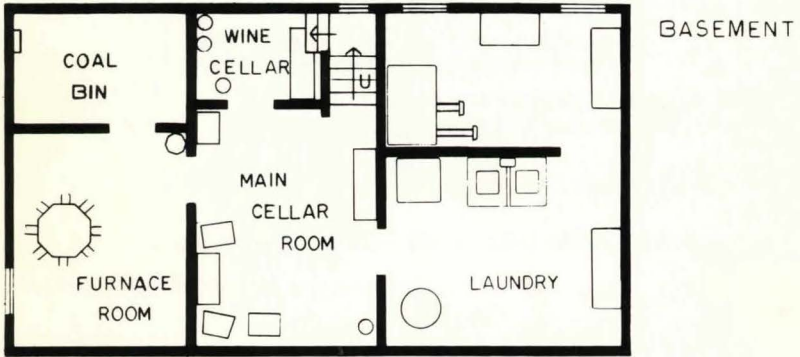
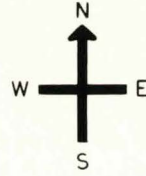
We're told that the distances are equal:

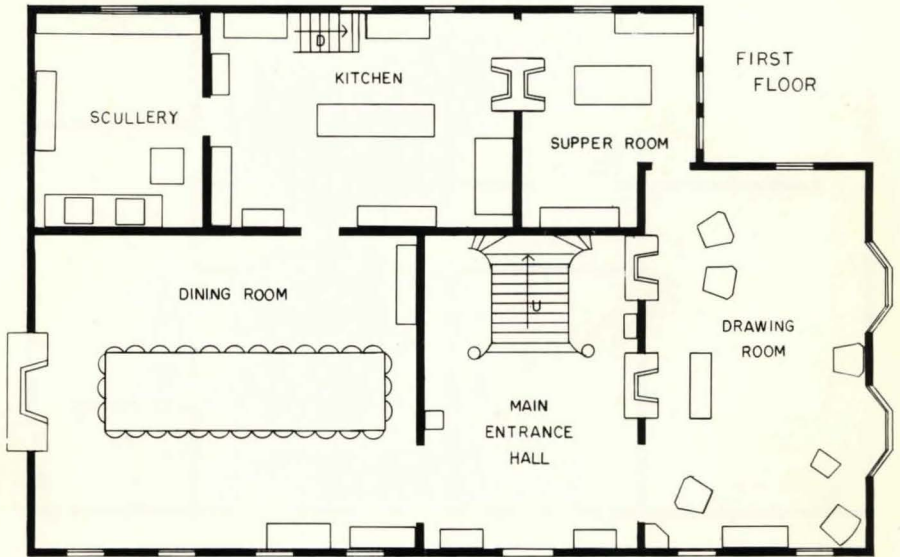
$$10X = 60 - 20X$$

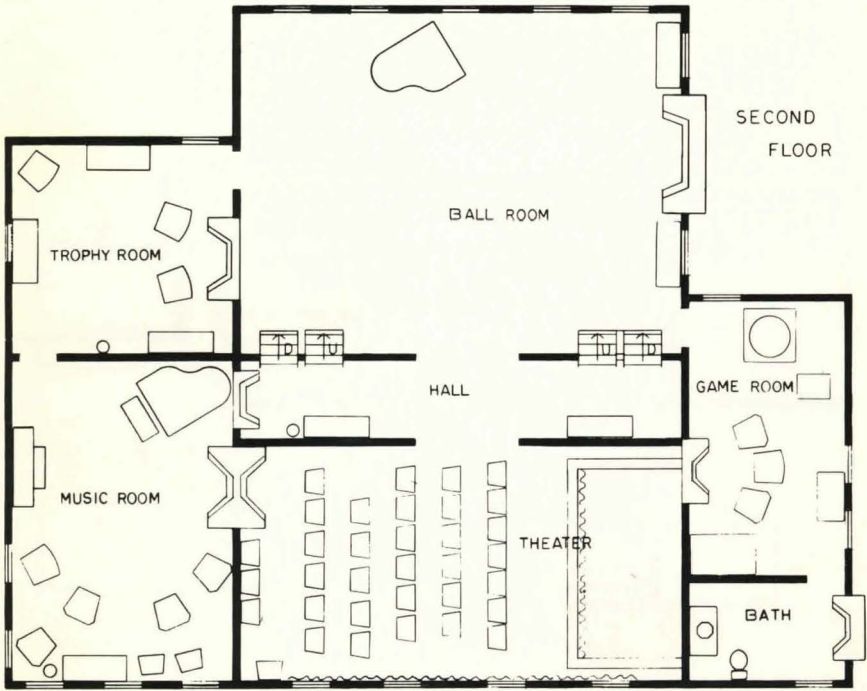
$$30X = 60$$

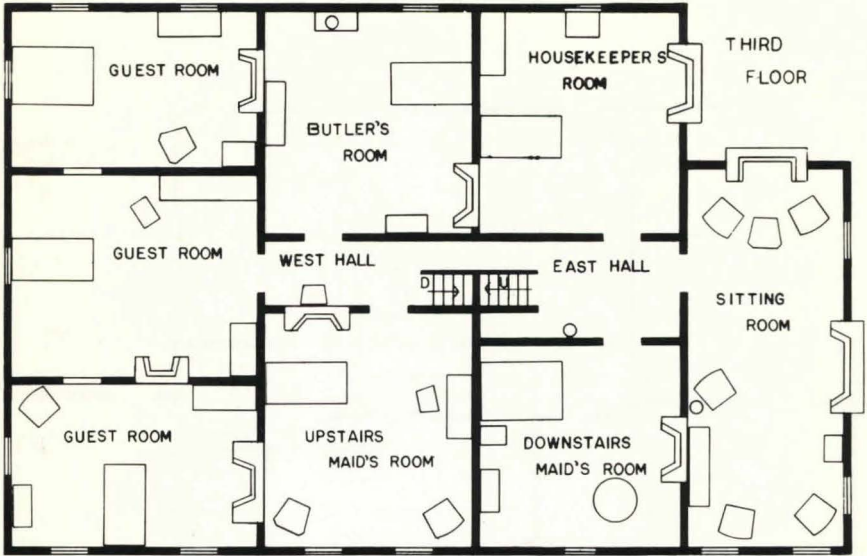
$$X = 2$$

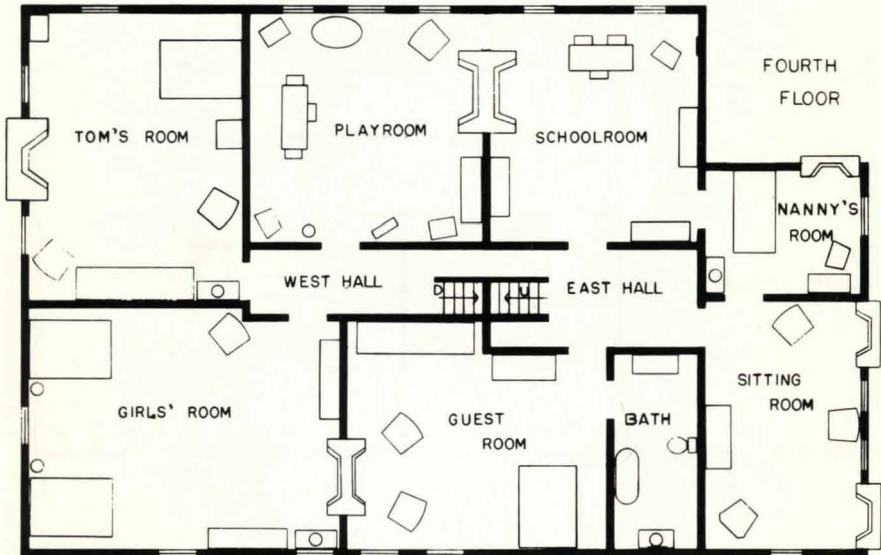
The boy traveled a total $(10X + 60 - 20X)$ of 40 miles.

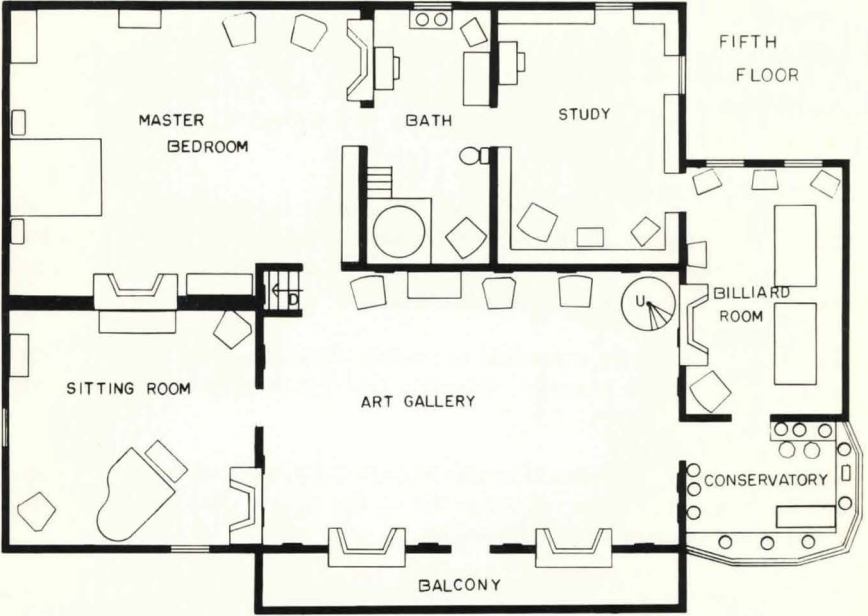












TEACHING STRATEGIES

MIND CASTLE II 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 II*, they view (or review) logic instruction and/or run *MIND CASTLE I*.

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. 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.

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.

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 *Mind Castle* program.

SAVE FUNCTION PROCEDURES

While running the *Mind Castle* program, the student may SAVE his or 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. We have formatted the back of your program disk for your use as a data disk. Simply:
 1. Take out the program disk.
 2. Turn the disk over.
 3. Put the disk back in.
 4. Press any key.
 5. Type a number from 1-99.

The computer is now ready for another student or may be turned off.

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

RECALL PROCEDURE FOR APPLE

- A. Boot the *Mind Castle* program disk. On the first frame you will see:

It never fails,
Seems every time you come
to the library, you end up
in the wrong section.

- B. If you wish to bypass the directions, type the letter S. This will let you "skip" to the Coal Bin. If you wish to read the directions, press Return.

C. Once in the Coal Bin (or any other room), you may use the recall procedure. Follow the directions on the screen. These directions are:

1. Type Recall and press Return.
2. Take out the program disk.
3. Turn the disk over.
4. Put the disk back in.
5. Press any key.
6. Type your number.
7. Turn the disk over again and press a key.
You will return to the place you saved.

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

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

Type YES and the computer will ask for the 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.

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.

REFERENCES — LOGIC

- Adler, Irving. *Logic for Beginners Through Games, Jokes and Puzzles*. New York: John Day Co., 1964.
- Barker, Evelyn, M. *Everyday Reasoning*. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1981.
- Barker, Stephen F. *The Elements of Logic*. New York: McGraw-Hill Book Co., 1980.
- Beardsley, Monroe C. *Thinking Straight. Principles of Reasoning for Readers and Writers*. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1975.
- Berloquin, Pierre. *100 Games of Logic*. New York: Charles Scribner's Sons, 1977.
- Chase, Stuart. *Guides to Straight Thinking*. New York: Harper & Brothers Publishers, 1956.
- Dinesman, Howard P. *Superior Mathematical Puzzles*. New York: Simon and Schuster, 1968.
- Degrazia, Joseph. *Math Tricks, Brain Twisters & Puzzles*. New York: Bell Publishing Co., 1981.
- Emmet, E.R. *Mind Tickling Brain Teasers*. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1978.
- Fixx, James F. *More Games for the Superintelligent*. New York: Warner Books, 1972.
- Fixx, James F. *Solve It!* New York: Fawcett Popular Library, 1978.
- Flesh, Rudolf. *The Art of Clear Thinking*. Scranton, PA: Haddon Craftsmen, 1951.
- Fletcher, Helen Jill. *Put on Your Thinking Cap*. London: Abelard-Schuman, 1968.
- Grosswirth, Marvin; Salny, Dr. Abbie and the members of MENSA. *The MENSA Genius Quiz Book*. Reading, MA: Addison-Wesley Publishing Co., 1981.
- Hamilton, Ben. *Brainteasers and Mindbenders*. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1981.
- Hodnett, Edward. *The Art of Problem Solving*. New York: Harper & Brothers, 1955.
- Hufford, Roger. *Challenging Puzzles in Logic*. Toronto, Ontario: General Publishing Co., Ltd., 1982.
- Jeffrey, Richard. *Formal Logic: Its Scope and Limits*. New York: McGraw-Hill, Inc., 1981.
- Latcha, Alfred G. *How Do You Figure It?* Cranbury, N.J.: A.S. Barnes and Co., Inc., 1970.
- Manchester, Richard R. *The Mammoth Book of Word Games*. New York: McGraw-Hill Publishers, Inc. 1981.
- More Tests and Teasers*. New York: Reader's Digest Press and Berkley Publishing Corp., 1982.
- Smullyan, Raymond. *The Lady or The Tiger?* New York: Alfred A. Knopf, Inc. 1982.
- Smullyan, Raymond. *What Is The Name of This Book?* Englewood Cliffs, N.J.: Prentice-Hall, Inc. 1978.

REFERENCES — VICTORIANA

- Aslet, Clive. *The Last Country Houses*. New Haven, CT: Yale University Press, 1982.
- Bridgeman, Harriet, ed. *The Encyclopedia of Victoriana*. New York: Mac-Millan Publishing Co., Inc. 1975.
- Cavalier, Julian. *American Castles*. Cranbury, New Jersey: A.S. Barnes and Company, 1973.
- Evans, Joan. *The Victorians*. New York: Cambridge University Press, 1966.
- Evans, Hilary & Mary. *The Victorians At Home and At Work*. New York: Arco Publishing Company, Inc., 1973.
- Folsom, Merrill. *More Great American Mansions and Their Stories*. New York: Hastings House, Publishers, 1967.
- Hertz, Louis H. *The Toy Collector*. New York: Funk & Wagnalls, 1969.
- Jervis, Simon. *Victorian Furniture*. London: Ward Lock & Co. Limited, 1968.
- Maass, John. *The Victorian Home in America*. New York: Hawthorne Books, Inc. 1972.
- Peter, Mary. *Collecting Victoriana*. New York: Frederick A. Praeger, Inc. 1968.
- Thorndike, Joseph J., Jr., *The Magnificent Builders*. New York: American Heritage Publishing Co., Inc., 1978.
- Williams, Henry Lionel & Ottalie K. *Great Houses of America*. New York: G.P. Putnam's Sons, 1966.
- Zerbe, Jerome. *Small Castles and Pavillions of Europe*. New York: Walker and Company, 1976.



Lawrence Productions, Inc.

Lawrence Productions, Inc., 1800 S. 35th Street, Galesburg, MI 49053-9687