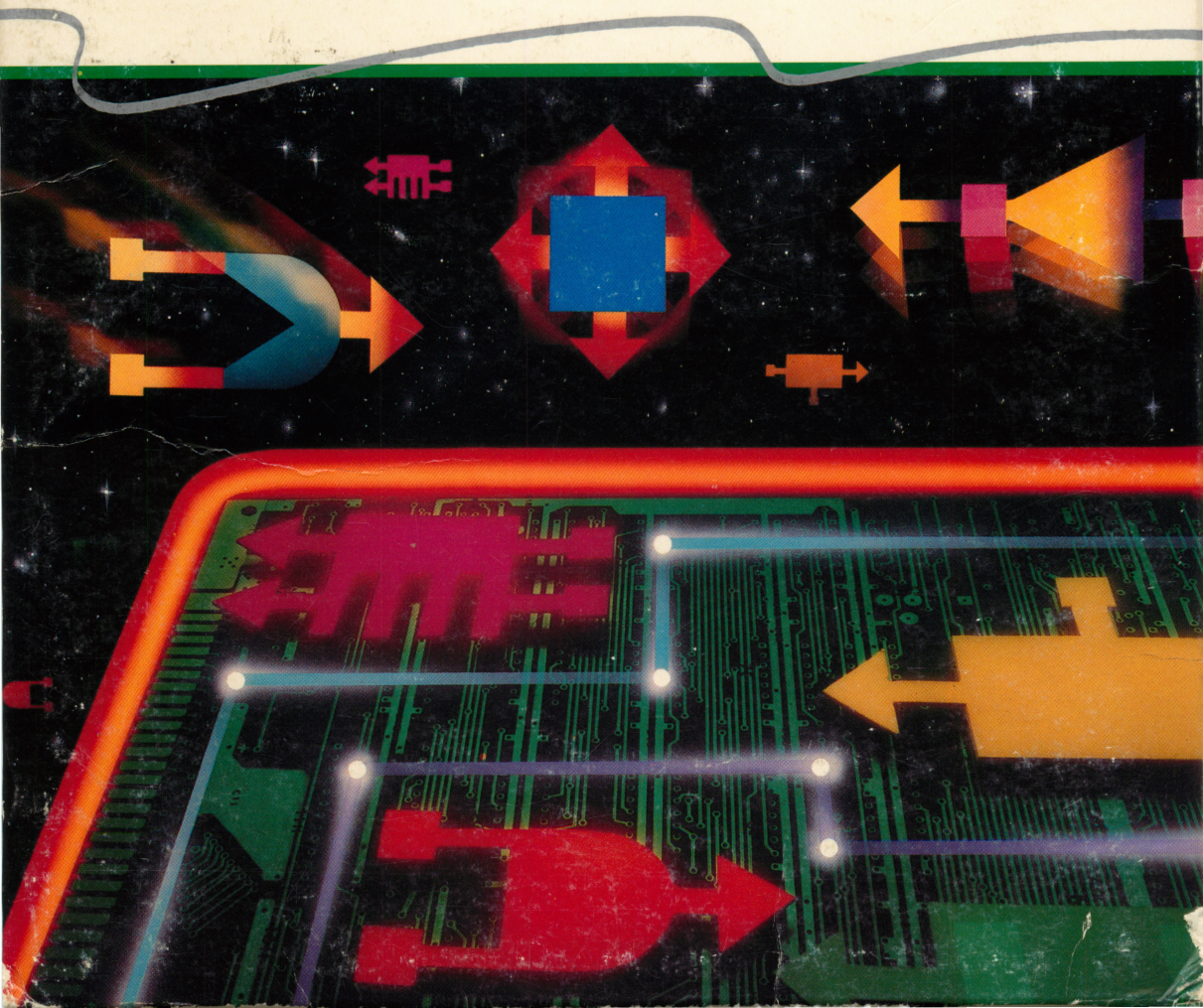# ROCKY'S BOOTS

Learn the basics of logic and circuitry in the futuristic world of Rocky's Boots. In an amazing program that appeals to 9-year-olds yet challenges adults, design logic machines using simulated computer circuits. Play 39 games or create your own with Rocky's unique editor. *An incredible game.*

The Learning Company ™

The Learning Company™

Rocky's Boots™

Author/Designer:
Warren Robinett, M.S.

The Learning Company
545 Middlefield Road
Menlo Park, CA 94025

Rocky's
Boots

Rocky's Boots runs on:
- ☐ Apple II, 48K
- ☐ Apple II+, 48K
- ☐ Apple IIe (with CAPS LOCK key down).

With:
- ☐ Disk] [
- ☐ Color monitor or TV (required)

For:
- ☐ Ages 9 and up

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545 Middlefield Road
Menlo Park, CA 94025
Attn: Disk Return Dept.

CONTENTS

WELCOME TO ROCKY'S BOOTS

Rocky's Boots is an exciting way to develop advanced thinking skills. You start by building simple machines, not real machines, but simulations. You design them right on your screen. Then you watch the machines work as the orange "electricity" flows through the wires and parts. Your objective is to build machines that will win the games in Rocky's Boots.

To build winning machines you learn to connect wires to sensors using AND, OR, and NOT gates. Soon you can be designing more complex machines using FLIPFLOPS, CLOCKS, and DELAYS. As you do all this, you will be learning about the basics of the electronic circuitry and the logic behind what makes computers "tick." You will also be learning how to reason: figuring out what belongs with what, why things work or do not work, and how to form logical solutions.

Rocky's Boots is made up of six different sections containing 90 rooms. Some are for learning. Some are for practice. Some have enough puzzles to challenge you for months, even years. And that's not all. There is a special game design room called "MAKE YOUR OWN." Here you can apply your creative thinking skills and invent any number of your own mind-boggling games.

What you need to learn is introduced sequentially from section to section. You need to learn from 1. HOW TO MOVE before you can start 2. BUILDING MACHINES. In 2 you learn things you need for section 3, then 4, and so on. If this is the first time you have played Rocky's Boots, start at the beginning to build the skills you need. Take your time. Learn everything step by step.

P.S. Some people may think that Rocky's Boots is just for fun. To see what you are learning, turn to THE LEARNING LIST on page 25.
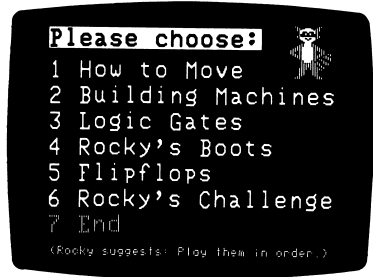
GETTING STARTED

Put your Rocky's Boots disk in
the disk drive and close the door.
Turn on the computer.

*If you are using an Apple IIe
computer, be sure the CAPS
LOCK key is pressed down.*
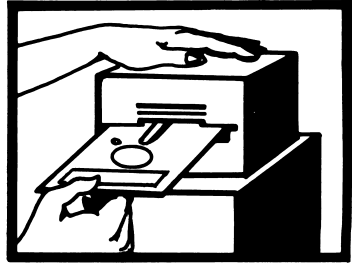
CHOOSING A GAME

You will see a list of titles. This is
called a menu. Is this the first time
you have played Rocky's Boots?
Start at the beginning with
1. HOW TO MOVE. Then follow
the menu in order.

```
Please choose:
1 How to Move
2 Building Machines
3 Logic Gates
4 Rocky's Boots
5 Flipflops
6 Rocky's Challenge
7 End
(Rocky suggests: Play them in order.)
```

Choose a title. Type its number and wait for it to load.

Titles 1 through 5 are tutorials. They show what you need
to know to play the most challenging games. In 4. ROCKY'S
BOOTS there are eight different games to give you a
sample of what is to come. By 5. FLIPFLOPS, you are
working with complex timers and switches. Then you
should be ready for 6. ROCKY'S CHALLENGE. When you
get there, look for the special MAKE YOUR OWN game.
Find the design room and see how inventive you can be
in creating your own games.

THE PROGRAM

1. HOW TO MOVE

Start here if you have never used Rocky's Boots before. You will learn how to move around and how to pick up and drop objects. You can use a joystick or a keyboard to move.

When the program begins, this is what you will see.
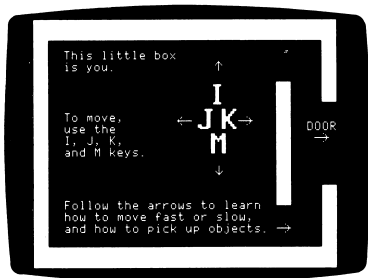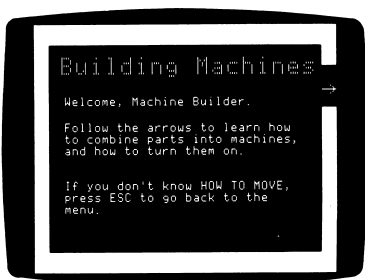
Press ⌷ESC⌷ to leave the program at any time.

(See Special Keys section on page 29 for complete description of the use of special keys.)

Press ⌷CTRL⌷ (or ⌷CONTROL⌷ for Apple IIe) and ⌷G⌷ at the same time to turn the sound off or on. Type ⌷SHIFT⌷ and ⌷?⌷ for a summary of keyboard commands.

2. BUILDING MACHINES

Start here to learn how to build simple machines and turn them on. At the end you will find two practice rooms. You can collect parts from any room and carry them there.

When connecting parts and wires, you "plug" outputs (arrows) into the inputs (circles).

```
Building Machines

Welcome, Machine Builder.         →

Follow the arrows to learn how
to combine parts into machines,
and how to turn them on.

If you don't know HOW TO MOVE,
press ESC to go back to the
menu.
```

OUTPUT ◀━━━━━━━●▬ **INPUT**

YES ◀━━━━━●◀━━━━━●

NO ◀━━━━━●▶━━━━━▶
●━━━━━▶◀━━━━━●

Also, when you connect parts, they do not have to be exactly next to each other. Press SPACEBAR (or either joystick button) as soon as you see the input or output "hopping."

See what you can build.

Once you connect parts, they will stay connected. If you need to disconnect them to change your design, remember to use the splitter.

The splitter is a special tool for Rocky's world —

Only a trained person should connect and disconnect real wires.

Some parts you'll be using in BUILDING MACHINES:

wire: This wire has an input and an output. The round end is the *input.* You send current IN through the input. The pointed end is the output where the current flows out.
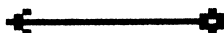
sensor: A sensor is a device whose output turns on when it comes into contact with whatever it is sensitive to.

splitter: A splitter is used as a tool to disconnect parts.

clacker: A clacker works like an electronic bell. Turn it on to make it ring.

3. LOGIC GATES

Start here to learn how to build machines using AND, OR, and NOT logic gates. This section ends with two rooms where you can collect lots of parts and practice building machines.
(If your cursor gets completely "eaten" in the secret room, you can get it back out again. Hold down the SPACEBAR or either joystick button to see an outline of your lost cursor. Move the outline out of the room. As soon as you leave the room, your cursor will reappear.)
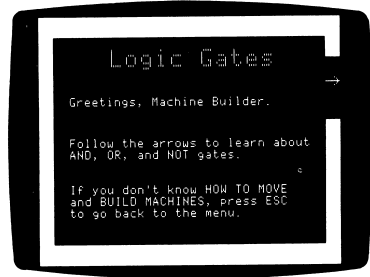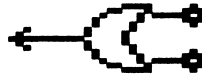
This is a NOT gate.

Its output is on when its input is not on, and vice versa.
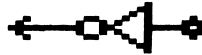
This is an OR gate.

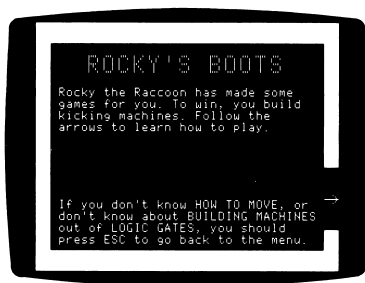Its output is on when either the top input or the bottom input or both are on.

This is an AND gate.

Its output is on only when the top and the bottom inputs are on.

4. ROCKY'S BOOTS

Follow the arrows to learn how to play the games. Find out about the target kicking area, the target shapes and how they activate the sensors. Learn to build machines to make the boot kick only the targets that score points for you.

ROCKY'S BOOTS

Rocky the Raccoon has made some games for you. To win, you build kicking machines. Follow the arrows to learn how to play.

If you don't know HOW TO MOVE, or don't know about BUILDING MACHINES out of LOGIC GATES, you should press ESC to go back to the menu.

Move to the Game Select Room. Pick the game you want by "stepping on" the input of its name.

The Blues
Circles
Un-green
Blue triangles
Diamonds or circles
Blue crosses
Diamond or green
Non-circles

GAME SELECT ROOM

When you do, targets and sensors will appear for that game. Notice that some of the targets have positive numbers. Others have negative numbers. To win the most points your machine should kick only the targets with positive numbers.

Twenty-four points are the most you can win in any game.

The Blues
Circles   -6
Un-green   7
Blue triangles   -6
Diamonds or circles 5
Blue crosses   -6
Diamond or green   7
Non-circles   -6
                    5

GAME SELECT ROOM

Build your machine in the game room or any room you like. Then move it to the game room. All the games can be solved with just the parts in this room. Will your finished machine kick only the targets with positive numbers? Try it.

Begin the game by "stepping on" the Start Targets input in the top left hand corner. The targets will drop down to the room below. Then they will float up one at a time into the target area.
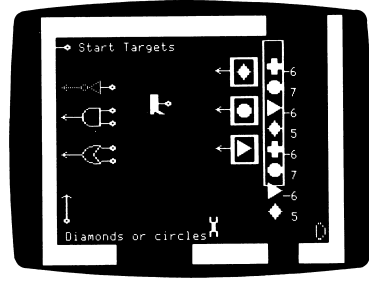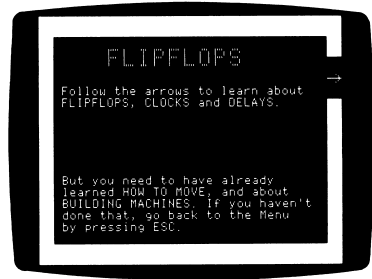

You can watch the game in three places. In the game room you can watch the boot in action. You can also move down to the Game Select Room and watch the targets float up one at a time. Or you can go above the game room and watch the targets arrive. They arrive in two columns. Those that were kicked are on the right. Those that were not kicked are on the left.
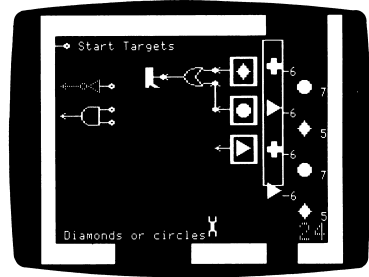
5. FLIPFLOPS

In this section, learn about FLIP-
FLOPS, CLOCKS and DELAYS.
You will need these to build the
more complicated machines in
Rocky's Challenge.

FLIPFLOPS

Follow the arrows to learn about
FLIPFLOPS, CLOCKS and DELAYS.

But you need to have already
learned HOW TO MOVE, and about
BUILDING MACHINES. If you haven't
done that, go back to the Menu
by pressing ESC.

The FLIPFLOP is like a switch.
Current comes out of one output
at a time and flips to the other
output when the other input is
turned on.
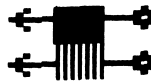
FLIPFLOP

The CLOCK has four outputs.
Current flows clockwise from one
output to the next.

CLOCK

A DELAY delays the current
coming in from the side until the
top input turns on. Then the
current can get through.
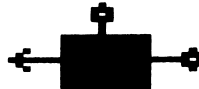
DELAY

6. ROCKY'S CHALLENGE

Rocky's Challenge has 15 rooms. You can see them on pages 18 and 19.
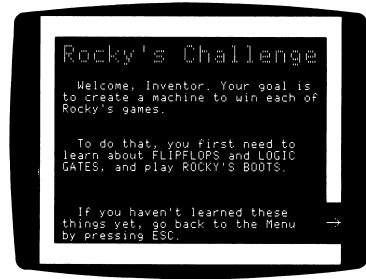
Move to the right to enter the game room. Try a sample game. Attach the boot to the purple sensor. Then step on the Start Targets input in the upper left hand corner and watch what happens. The targets will drop down out of the room. Then they will float up one at a time into the target area. As the targets pass through, some will be kicked and the score will go up or down.
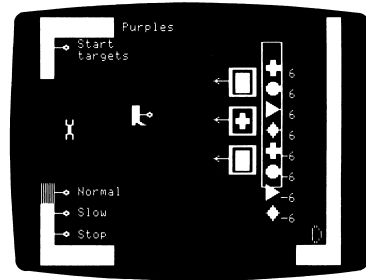

After all the targets have passed through, they will drop back into the game room, sorted into two columns. Those that were kicked will be on the right. Those that were not kicked will be on the left. This lets you see how well your machine worked.

Notice that you scored 24, a
perfect score. Try hooking the
boot to another sensor. What
happens to the score now?

Go to the Games Select Rooms
to choose another game.

You will see four Game Select
Rooms. The games get more
challenging as you move from
the top room to the bottom.
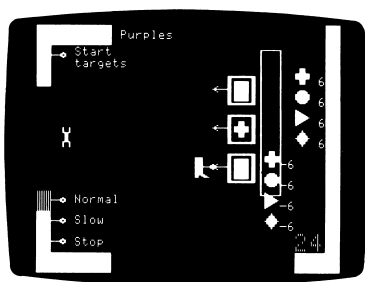
Choose a game by "stepping on"
the input next to its name. When
you do, the targets and sensors
will appear. Each target will have
a positive or negative number
beside it. To win the most points,
your machine should kick only
the targets with the positive
numbers.
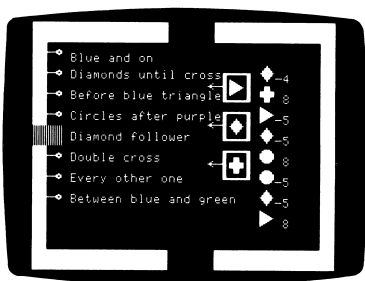
You will find four spare parts rooms below the game room
and two above it. Look for them on the map. Look here for
parts you will need to build the more complicated machines.

You can build your machine in any room you like. Then
move it to the game room.

The map shows an example of a machine that solves one
of the games in the third Game Select Room. This machine
kicks shapes that follow diamonds.

DE-BUGGING MACHINES

Sometimes you build a machine that needs to be debugged.

If your machine is not working the way you want it to, you can make the electricity run in slow motion. You can even stop it completely. This lets you see what is happen-ing. Use the "Slow" or "Stop" inputs for this. Step on the "Normal" input to start at normal speed. Then you can move to "Slow" or "Stop."
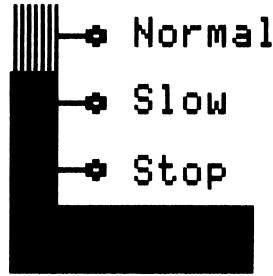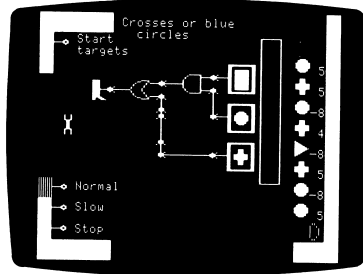

WATCH OUT FOR GLITCHES

Sometimes you will build a machine which should work but does not. If there are too many wires and gates between the sensors and the boot, the electricity left over from the last target can cause problems.
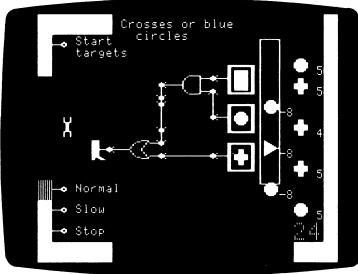
This machine will work.

This machine should work but will not because of a glitch. It has too many wires. It needs to be changed.

MAKE YOUR OWN

Are you ready to create your own games? Pick the last game choice in Rocky's Challenge called "MAKE YOUR OWN."

The door to the Game Room will open. Go through the door. Stop to read the instructions. Then move to the edit room at the end.

You can change the color or shape of the sensors. You can change the color, shape, and point value of the targets.
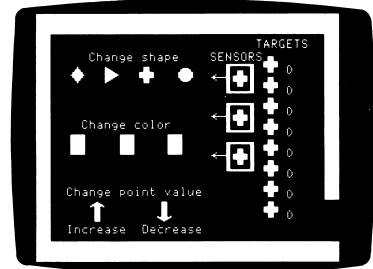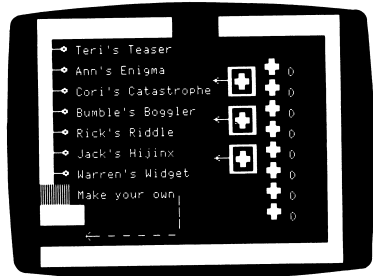
CHANGING SHAPES:

□ Pick up a target or sensor.
□ Carry it to the change shape row.
□ Hold it on top of the shape you want. It will automatically change to that shape.

CHANGING COLORS:

□ Pick up a target or sensor.
□ Carry it to the change color row.
□ Hold it on top of the color you want. It will automatically change to that color.

CHANGING POINT VALUES:

□ Pick up a target.
□ Carry it to the arrows. Hold it on top of the arrow you want.

↑ Up arrow increases the value, one point at a time.

↓ Down arrow decreases the value, one point at a time.

□ Remember the winning score is 24. Be sure you make enough positive targets to equal 24.

When you drop a target or sensor, it will pop back in place. You do not need to carry it back.

Experiment and watch the changes. Can you or a friend build a machine that can win your game?

You may want to draw your game to help remember it so you can make it again later.

THE WORLD OF ROCKY'S CHALLENGE

Rocky's Challenge

Welcome, Inventor. Your goal is to create a machine to win each of Rocky's games.

To do that, you first need to learn about FLIPFLOPS and LOGIC GATES, and play ROCKY'S BOOTS.

If you haven't learned these things yet, go back to the Menu by pressing ESC.

→

Build a machir to kick the positive targe in here.
→

Then choose a new game down here.
↓

→ Purples
→ Crosses
→ Diamonds or circles
→ Blue triangles
→ Un-green
→ Blue or round
→ Things with corners
→ Purple crosses

→ Circle, diamond or triangle
→ Crosses or blue circles
→ Non-green triangles
→ Unpurple non-diamond
→ Blue or green convex
→ Blue circles nix
→ Green diamonds or blue triangles
→ Diamond or purple, but not both

→ Blue and on
→ Diamonds until cross ◆-4
→ Before blue triangle ✚ 8
→ Circles after purple ▶-5
→ Diamond follower ◆-5
→ Double cross ● 8
→ Every other one ●-5
→ Between blue and green ◆-5
▶ 8

TARGETS

Change shape   SENSORS
◆ ▶ ✚ ●   ✚ 0
                ✚ 0
                ✚ 0
Change color   ✚ 0
■ ■ ■   ✚ 0
                ✚ 0
Change point value ✚ 0
↑   ↓   ✚ 0
Increase Decrease

In the next room, you can make up your own game.

Pick up a TARGET or SENSOR and run it into the color or shape you want it to have.

A SENSOR can't have both color and shape. It can only sense one thing at a time.

You can change how many points a TARGET is worth by running it into the fat arrows.

←

→ Teri's Teaser
→ Ann's Enigma
→ Cori's Catastrophe
→ Bumble's Boggler
→ Rick's Fiddle
→ Jack's Hijinx
→ Warren's Widget
→ Make your own

Diamond follower

Start
targets

X

Normal
Slow
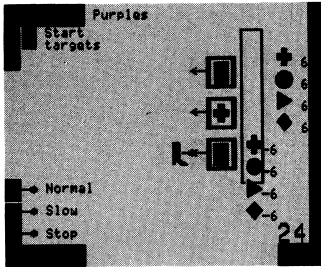Stop

24
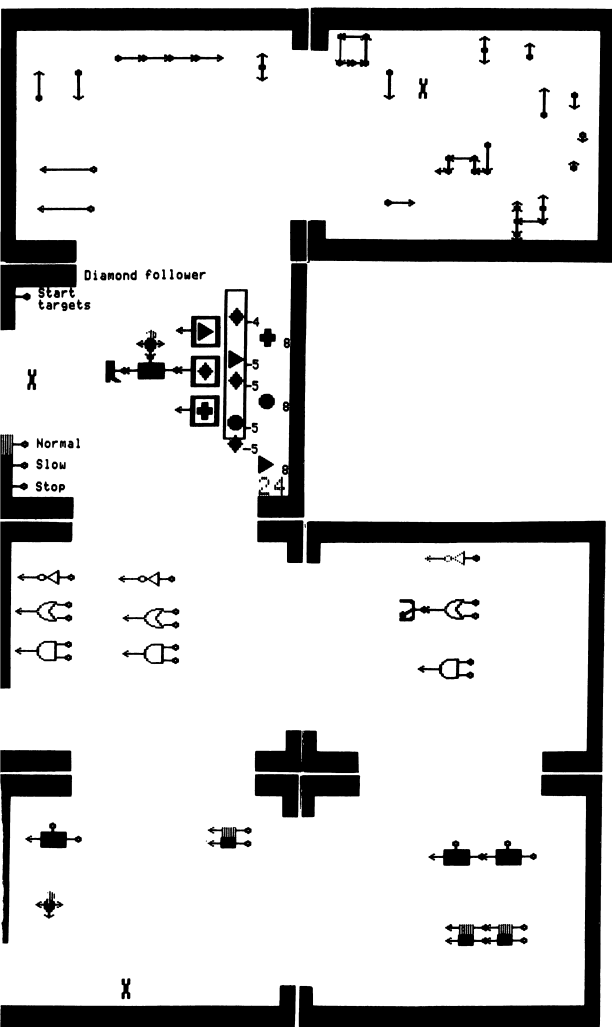
ROCKY'S SOLUTIONS

Many of the games in Rocky's Challenge can be solved in more than one way. If you build a machine that kicks 24 points your machine is a good one.

Watch out for glitches. You may build a machine that doesn't work even though you are sure it should. This can happen when there are too many wires and gates between sensors and the boot. Rebuild the machine with shorter paths of wire and it should work.

Also pay attention to the initial settings of some of the logic elements when building the more complicated machines. In "Every Other One," for example, the DELAY must be set ON when the game starts. If it is set OFF, the machine will not kick the correct targets. In fact, whenever they are used in a machine, FLIPFLOPS must be preset a particular way for the machine to score 24 points.

Finally, you can extend the game by making up your own scoring goals. For example, you can build machines that will score the most negative points for each game. You may end up building some great-looking machines.

Play around in Rocky's practice rooms and see how many interesting machines you can build. Here are two ideas to get you started: 1) Collect three clackers and three NOT gates. Build a clacker symphony. 2) Find some NOT gates, some thrusters and some wires. Build some machines that move.
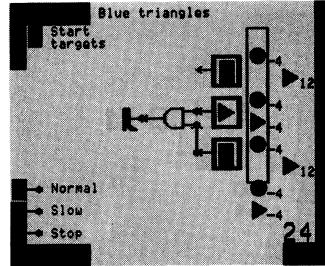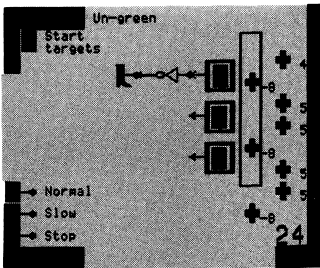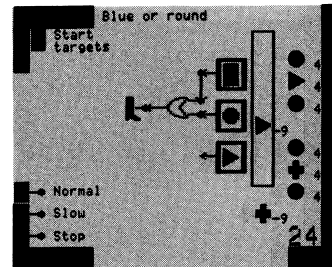
PURPLES
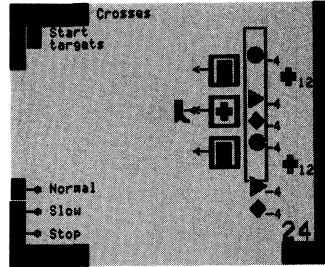
CROSSES
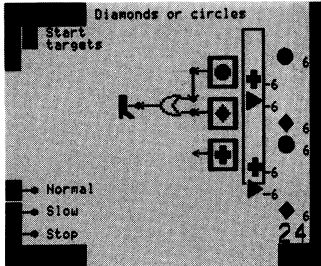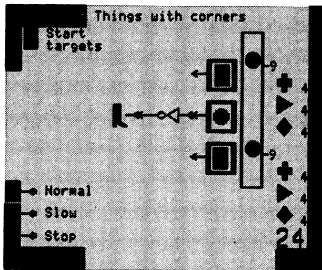
DIAMONDS OR CIRCLES
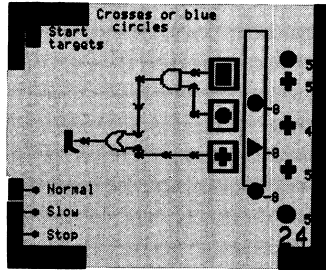

BLUE TRIANGLES

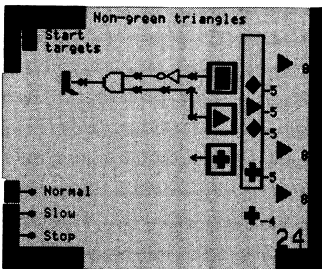**UN-GREEN**

BLUE OR ROUND
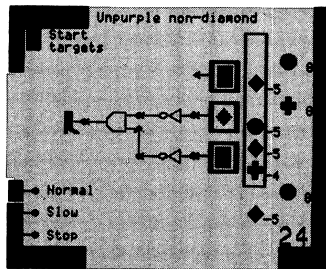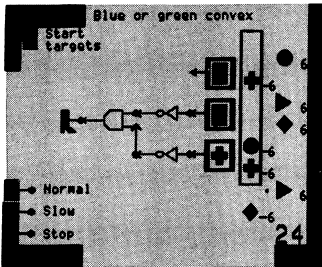
THINGS WITH CORNERS
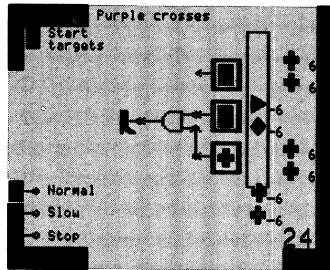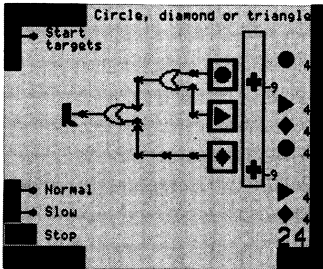
PURPLE CROSSES
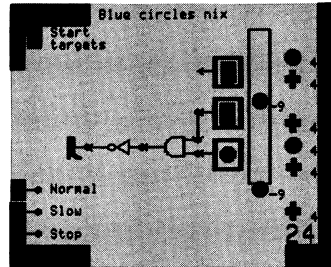

**CIRCLE, DIAMOND
OR TRIANGLE**

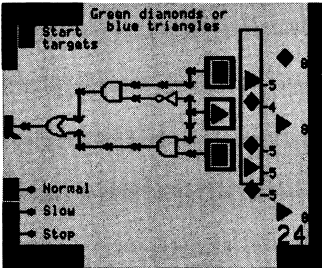**CROSSES OR
BLUE CIRCLES**

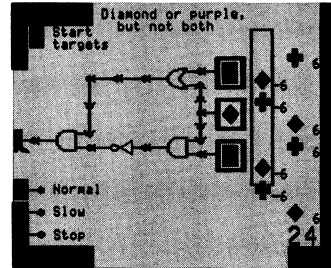**NON-GREEN TRIANGLES**

**UNPURPLE
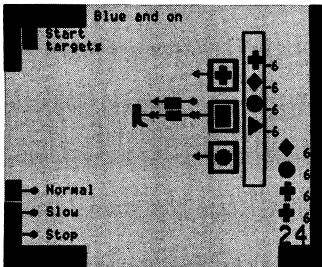NON-DIAMOND**

BLUE OR GREEN CONVEX
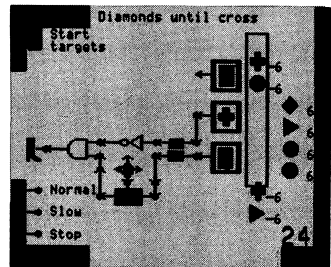

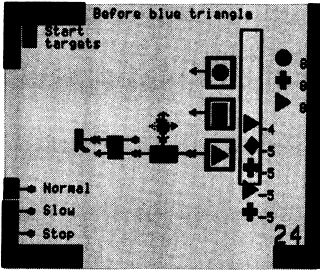**BLUE CIRCLES NIX**

GREEN DIAMONDS OR BLUE TRIANGLES
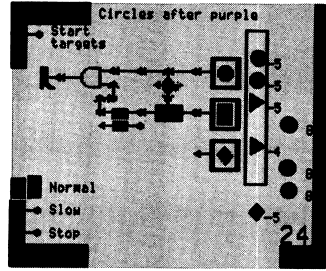

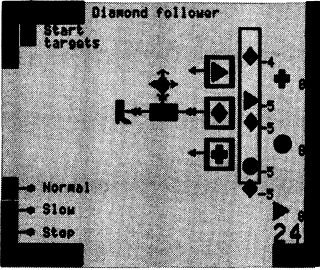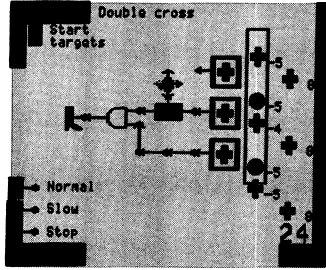**DIAMOND OR PURPLE, BUT NOT BOTH**

BLUE AND ON

DIAMONDS UNTIL CROSS

BEFORE BLUE TRIANGLE

CIRCLES AFTER PURPLE

DIAMOND FOLLOWER

DOUBLE CROSS
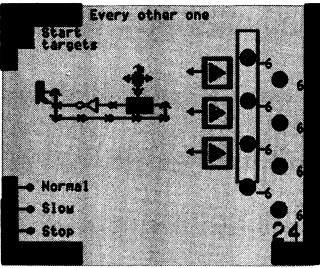
EVERY OTHER ONE
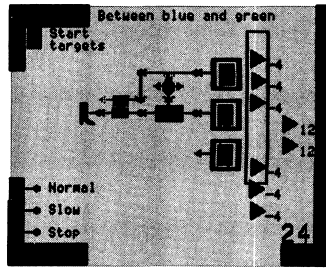
**BETWEEN BLUE
AND GREEN**

THE LEARNING LIST

Here are some of the things you can learn section by section. If you are just beginning, be sure to start with 1, then 2, and so on. Take your time. Learn everything step by step.

SECTION	SKILLS AND CONCEPTS PRESENTED

1. HOW TO MOVE
(14 learning and practice rooms)

- Using special keys.
- Turning sound on and off.
- Moving the cursor.
- Picking up and dropping objects.
- Using the joystick to play.

2. BUILDING MACHINES
(16 learning and practice rooms)
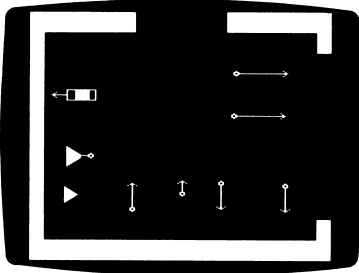
- Using inputs and outputs, wires and sensors.
- Connecting and disconnecting parts.
- Building simple circuits (machines).
- Making current flow.

3. LOGIC GATES
(16 learning and practice rooms)
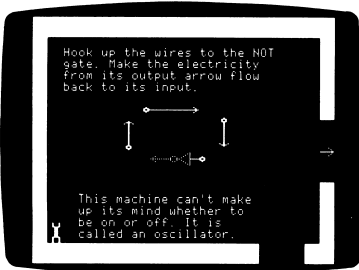
- Constructing machines using AND, OR and NOT gates (Boolean logic).
- Using OR trees and NOT gate oscillators.
- Constructing machines with logic trees and oscillators.

4. ROCKY'S BOOTS
(13 rooms, 8 games)
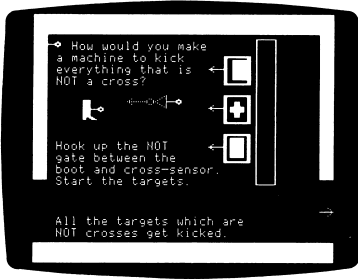
□ Activating targets.
□ Identifying positive and negative values.
□ Recognizing and avoiding glitches.
□ Building and debugging circuits.
□ Classifying, abstracting, and inferring.
□ Applying (Boolean) logic to solve problems.
□ Using combinatorial logic.

5. FLIPFLOPS
(15 learning and practice rooms)
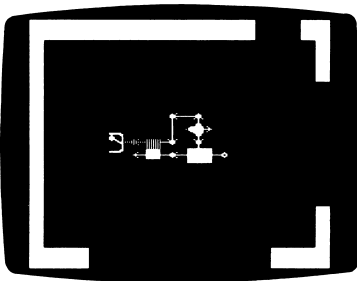
□ Using FLIPFLOPS, CLOCKS, and DELAYS.
□ Applying switching and timing in circuits.
□ Designing more complex circuits.

6. ROCKY'S CHALLENGE
(15 rooms, 32 games plus
MAKE YOUR OWN
game room)

□ Classifying, abstracting, and inferring.
□ Applying (Boolean) logic to solve simple to complex problems.
□ Debugging circuits.
□ Thinking creatively.
□ Inventing and designing games.
□ Using sequential and combinatorial logic.

ADDITIONAL ACTIVITIES

CREATIVE MACHINES

Play around in Rocky's practice rooms and see how many interesting machines you can build. Here are two ideas to get you started: 1) Collect three clackers and three NOT gates. Build a clacker symphony. 2) Find some NOT gates, some thrusters and some wires. Build some machines that move.

ALLIGATOR DETECTOR

An alligator lives in the Secret Room in Logic Gates. You will also find an alligator detector. It looks like this:

Pick up the alligator. Move it around and watch the detector. The outputs go on or off depending on where the alligator is. Get a clacker. Plug it into one output of the detector. See what happens when the alligator comes by. Remove the clacker and attach a bopper in its place. Now what happens?

Get two thrusters and two wires that point the right way. Connect the detector, wires, and thrusters like this:

This machine will follow the alligator. HINT: Make the machine in another room. Then take it to the Secret Room to test it.

VISIT YOUR LOCAL ELECTRONICS SHOP

Find out how many actual electronic parts you can match to the ones used in Rocky's Boots. Ask about electronic kits that can help you learn more about electronic circuitry. With the information you learn from Rocky's Boots, you should be a real whiz at constructing the items in these kits.

LOGICAL ROOM RULES

Create a circuitry chart to hang on the door of your room. List all the IF's, AND's and NOT's people should consider before entering your room. Make a bunch of signs in flip chart fashion to tack under each AND and NOT gate. Or you can tack on individual signs, changing them to suit your mood. Here are some examples:

IF: (I'm in./I'm out./I'm studying./I'm asleep.) AND: (I say "Come in."/I've overslept./I gave you a written pass to enter./You're bringing me breakfast in bed./You have the answers to my homework.) BUT you're not: (angry/dirty/ crying/bringing your pet snake/asking for money) THEN: you may enter (at your own risk).

SPECIAL KEYS

KEY		FUNCTION
Apple II+	**Apple IIe**	
↑ □I□ ←□J□ □K□→ □M□ ↓	↑ □I□ ←□J□ □K□→ □M□ ↓	I moves the cursor up M moves the cursor down J moves the cursor to the left K moves the cursor to the right
CTRL	CONTROL	Press this with I , J , K , or M to move the cursor a short distance (for fine control)
CTRL - G	CONTROL - G	Press both keys at the same time to turn the sound ON or OFF.
REPT - I REPT - J REPT - K REPT - M	Hold down I , J , K M	Make the cursor move continuously. (REPT means 'Repeat')
SPACEBAR	SPACEBAR	Pick up or drop objects
SHIFT - ?	SHIFT - ?	Press both keys at the same time to see the special keys list on the screen.
ESC	ESC	Leave the game and return to the menu.
	CAPS LOCKS	Makes all capital letters when down. NOTE: CAPS LOCK MUST BE IN DOWN POSITION TO PLAY ROCKY'S BOOTS ON THE APPLE IIe COMPUTER.

With a joystick:

If you have a joystick

☐ Press either button to "wake up" the joystick.

☐ Use the joystick handle to move around.

☐ Press either button to pick up or drop objects.

For best results, use a joystick with a handle that returns to the center when it is released.
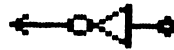
GLOSSARY

REAL WORLD ELECTRONIC PARTS

This wire has an input and an output. The round end is the *input.* You send current IN through the input. The pointed end is the *output* where the current flows OUT.

This is a NOT gate. Its output is on when its input is NOT on, and vice versa.

This is an OR gate. Its output is on when either OR both its inputs are on.

This is an AND gate. Its output is on only when the top AND the bottom inputs are on.

This is a FLIPFLOP. It is like a switch. Current comes out of one output at a time and flips to the other output when the other input is turned on.

This is a CLOCK. It has four outputs. Current flows clockwise from one output to the next. It is used to change the timing of current flow.
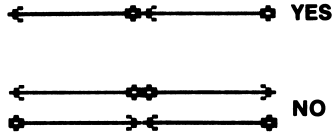
This is a DELAY. It delays the current coming from the side until the top input turns on. Then the current can get through.

GLOSSARY *(continued)*

MACHINES IN ROCKY'S WORLD

When connecting parts and wires, you "plug" outputs IN the inputs.

YES

NO

This is a CLACKER. It works like an electronic bell. Turn it on to make it ring.

This is a THRUSTER. Hook it up and watch it move.

This is an ALLIGATOR DETECTOR. The outputs go on or off depending on where the alligator is.

This is a BOPPER. Hook it up to bop the alligator.

This is a SPLITTER. Use this tool to disconnect parts.

This is a SENSOR. Its output turns on when it comes into contact with whatever it is sensitive to.

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About the Author

Warren Robinett, M.S., is the designer and programmer of Rocky's Boots. Robinett was one of Atari, Inc.'s original home video game designers and created one of the game industry's first animated adventure programs. In the award-winning Rocky's Boots, Robinett merges his computer science background with his game design expertise. He earned degrees from the University of California at Berkeley and Rice University.

The Learning Company is widely regarded as the pioneer in computer learning software. The company was founded by educational psychologist Dr. Ann Piestrup and the roots of the company remain grounded in educational theory. All TLC software programs are evaluated by its team of educational authorities and are extensively tested with children for their playful format and learning value. The company remains committed to providing children with software that teaches conceptual learning, logic and problem solving — skills that are needed for the computer age.

ROCKY'S BOOTS™