TELLY TURTLE ™

No. 2698

FOR

COLECOVISION®

& ADAM™

FAMILY COMPUTER SYSTEM

An Introduction to
Programming on
ColecoVision® and
ADAM™.

**CARTRIDGE
INSTRUCTIONS**

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Printed in U.S.A.

Telly Turtle™ was developed by Bob Stewart with Radia Perlman and Carousel Software, Inc.

The ColecoVision® translation was provided by Dan Smith.

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What's It All About?

Telly Turtle sure is cute—but he isn't very smart. You have to tell him every step and turn to make. However, Telly *does* have hidden talents. If you're patient, you can make him draw spectacular pictures on your computer screen!

Teaching Telly to draw is easy once you get the hang of it. Just remember that every picture you want him to draw must be broken down into small, simple steps. That may take a little time, but it's worth it. As Telly learns to draw, *you* learn the basics of computer programming.

This booklet will help you make an artist out of Telly in no time at all. It's divided into four different lessons, called "Turtle Topics." Each one tells just enough about Telly's talents for you to get him started drawing pictures. We won't tell you everything, though. That's because finding out what Telly can do is half the fun!

We've also included a Pull-Out Reference Guide to Telly Turtle™ Commands in the center of this booklet. Refer to this guide if you want to skip over the Turtle Topics and start drawing pictures right away.

Here's How It Works

Make sure the ColecoVision® or ADAM™ is off before inserting or removing a cartridge.

Using Your Controls

Telly Turtle™ was not designed for use with SUPER ACTION™ CONTROLLERS.
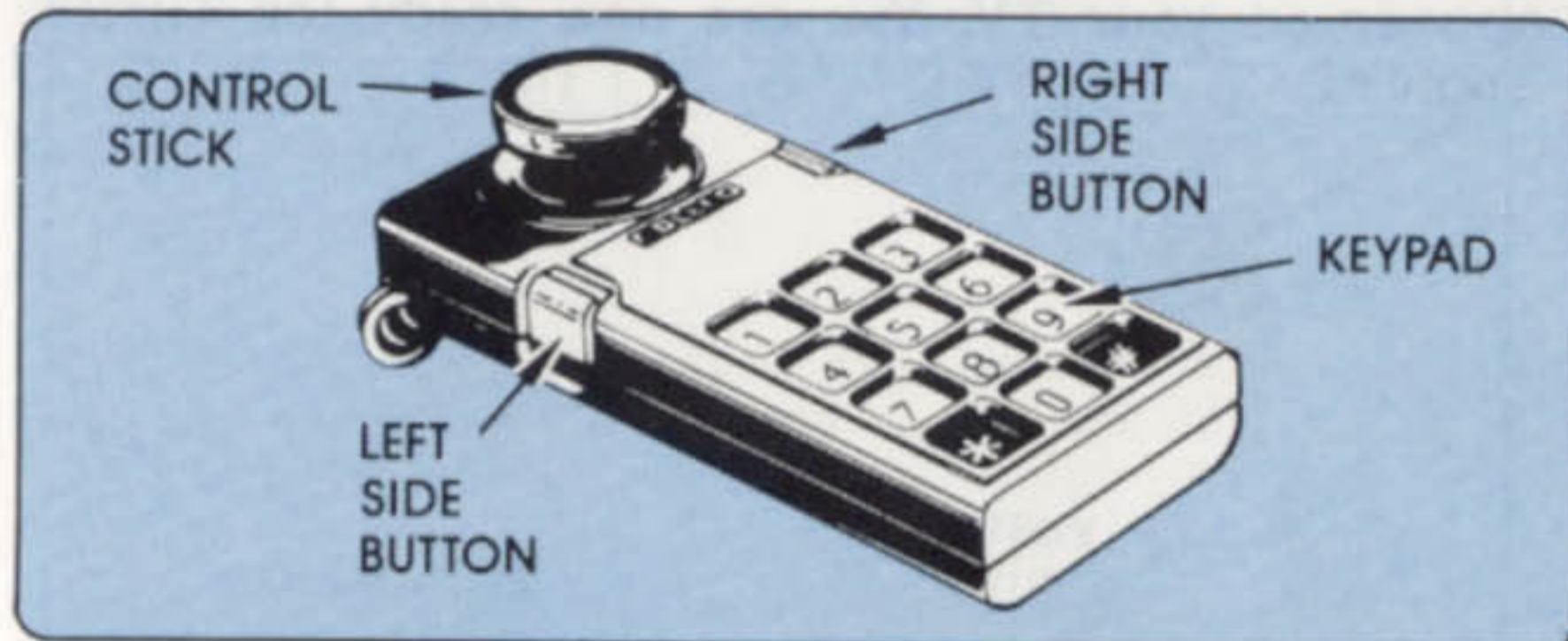
Control Stick: In most ColecoVision® games, you use the Control Stick to move objects around on the computer screen. In this game, however, the Control Stick is used to select instructions (commands) for Telly. You'll find out how to do that in Turtle Topic #1. For now, remember that pushing the Control Stick "up" means pushing it away from you. Pushing the Control Stick "down" means pushing it toward you.

Keypad Buttons: Keypad Buttons 1–4 let you select the level you want to use. You can change your selection at any time. Just press Keypad Button ✱ or # to return to the Option Screen.

Side Buttons: Press either side button to tell Telly to carry out your instructions. We'll talk more about this in the Turtle Topics that follow.

Getting Ready to Play

Plug the Controller into Port 1. Press the Reset Button. The Title Screen for Telly Turtle™ appears on your TV or monitor. After a few moments, the Title Screen is replaced by the Option Screen. It contains a list of four different levels. Because it's always best to start at the beginning, choose Level 1. To do that, press Keypad Button 1. Wait for the Level 1 Screen to appear on your TV. You are now ready for Turtle Topic #1.

Turtle Topic #1: Drawing, Step By Step

Ready to meet Telly Turtle™? That's him on your screen, sitting in the middle of his empty yard. The number 1 in the upper right corner reminds you that you're on Level 1.
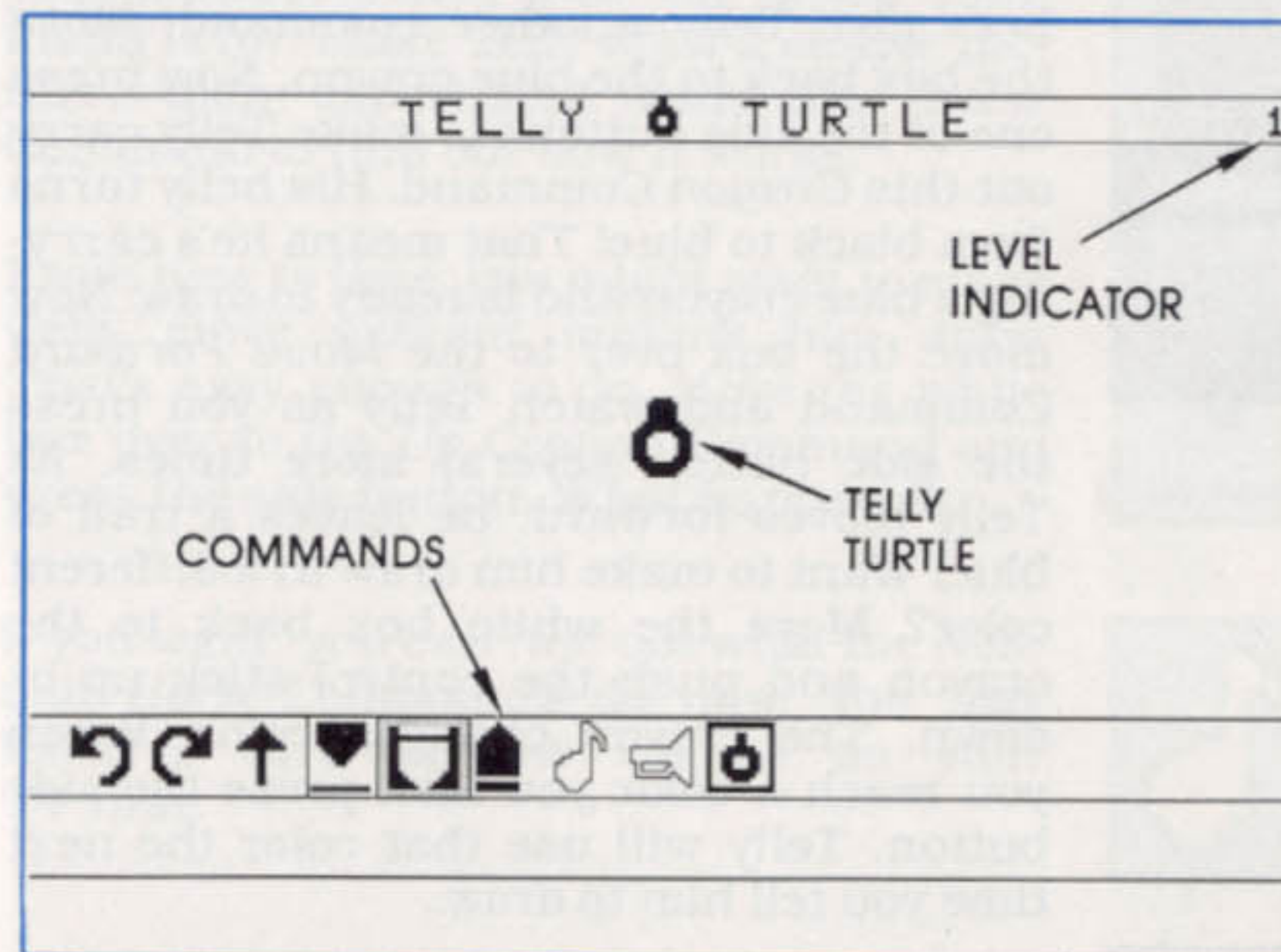
Level 1 Screen

Look at the set of pictures below Telly's yard. Each one stands for something you can tell him to do. We call these instructions **commands**. Now look at the white box surrounding the blue crayon. You'll use this box to pick out commands.

To see how it works, move your control stick left until the white box is surrounding the Up Arrow. Then press the left or right side button on your hand controller several times. Keep your eye on Telly! Each time you press the button, he carries out the command you selected. As you can see, this command means *move forward*.

Let's give Telly another command. Move the box back to the blue crayon. Now press one of the side buttons to make Telly carry out this *Crayon* Command. His belly turns from black to blue! That means he's carrying a blue crayon and is ready to draw. Now move the box over to the *Move Forward* Command and watch Telly as you press the side button several more times. As Telly moves forward, he leaves a trail of blue! Want to make him draw in a different color? Move the white box back to the crayon and push the control stick up or down. The crayon changes color. When you reach a color you like, press the side button. Telly will use that color the next time you tell him to draw.

Let's see what else Telly can do. Move the white box over the *Turn Right* Command. Press the side button several times. What happens? Now move the box back to the *Move Forward* Command. Press the side button as many times as you like. Telly is drawing his first picture! See what else Telly can draw, using the following commands: *Turn Right, Turn Left, Move Forward,* and *Crayon.*

Take a few moments to admire Telly's work of art. Then move the white box over to the *Clear* Command. (It looks just like Telly.) Press the side button—and poof! The picture is gone. Telly is back in the center of his empty yard.

But what if you only want to clear part of your picture? That's what the *Erase* Command is for. Make Telly draw a simple picture, then experiment with the *Erase* Command to find out how it works.

From time to time, you might want to make Telly move *without* making him draw. That's easy enough to do. Move the white box over to the *Up Crayon* Command and press the side button. What happens?

If you want, you can find out what the *Note* and *Horn* Commands do now. You may have to turn up the volume on your TV first.

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Summary of Turtle Topic #1

So far, you've learned how to select commands with the control stick and how to use the side buttons to make Telly carry out those commands. You've also learned what the pictures on the bottom of your screen stand for:

Makes Telly turn left (counterclockwise).

Makes Telly turn right (clockwise).

Makes Telly move forward in the direction he is pointing.

Makes Telly carry a colored crayon. He'll draw with this crayon when you tell him to move forward.

Lifts Telly's crayon so he can move without drawing.

Makes Telly carry an eraser so he erases everything in his path when he moves.
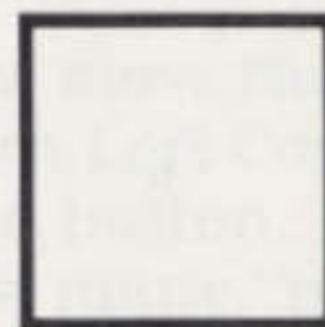
Produces a randomly selected musical note.

Produces a sound like a horn.

Clears the screen and sends Telly back to the center of his empty yard.

Choose a Challenge

Want to practice what you've learned so far? See if you can make Telly draw the following shapes. If you need extra help, refer to the summary of Level 1 commands.
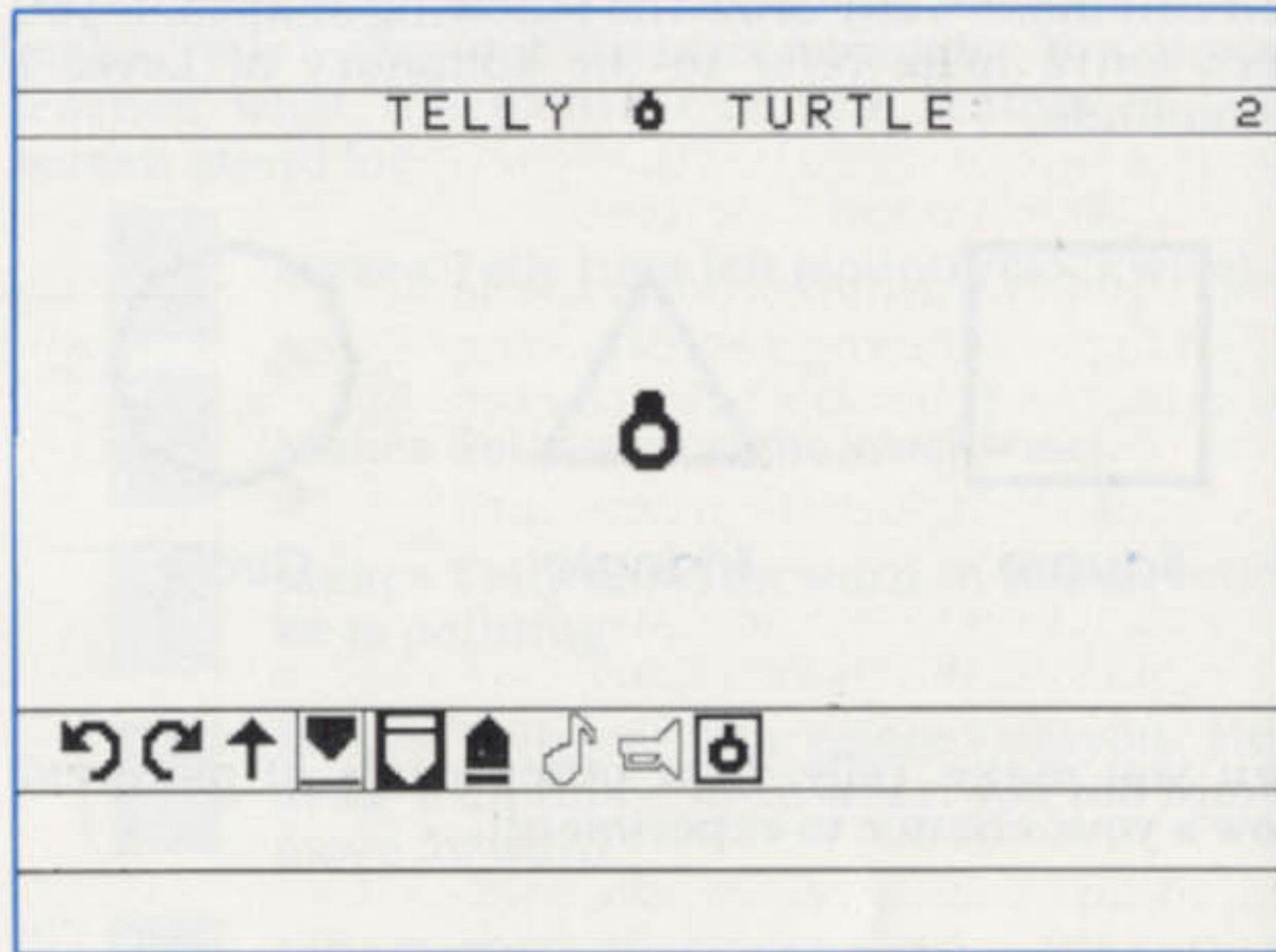
Square   **Triangle**   **Circle**

Can you make Telly draw other kinds of pictures? Now's your chance to experiment!

Turtle Topic #2: Giving Commands


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TELLY  ö  TURTLE                2




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Level 2 Screen

Now let's move on to Level 2. Clear your screen by pressing the *Clear* Command or the Reset Button. Then press Keypad Button # or * and wait for the Option Screen to appear. Then press Keypad Button 2.

This screen looks just like the one in Telly's first level, doesn't it? Move the white box over to the *Move Forward* Command and press the side button. Hmmm. Something new is happening. Telly is waiting for you to tell him how many "steps" to move. To choose how many, push the control stick up or down. The number following the command gets bigger or smaller. When you reach a number of steps you want Telly to try, press the side button. This instructs him to carry out that command. Watch what Telly does.

Now move the white box over to the *Turn Left* Command and press the side button. This time, Telly asks how many "notches" to turn. Move the control stick up or down until you reach the number of notches you want him to try. Now press the side button. When you know how this command works, try the other commands to find out how they work in Level 2. (The *Clear* command and the three *Crayon* Commands work the same as they do in Level 1.) Then use the commands to make Telly draw a few pictures.
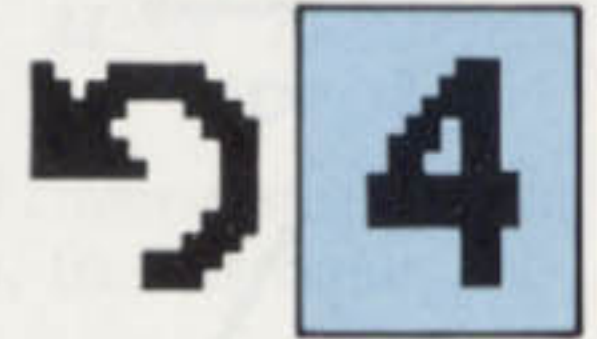
Summary of Turtle Topic #2

In this section, you learned that certain commands require you to say **how many** steps you want Telly to move or **how many** notches you want him to turn. You also discovered that when you select the *Horn* or *Note* Command, Telly asks **how many** sounds you want him to make. You've taken your first step toward programming Telly to draw.
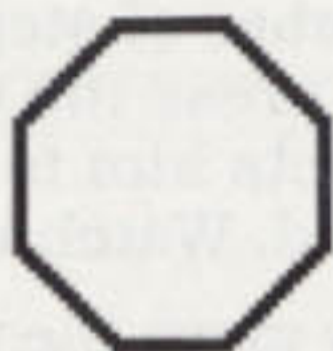
Choose a Challenge

Can you make Telly draw these pictures? Some of them are harder than they look!
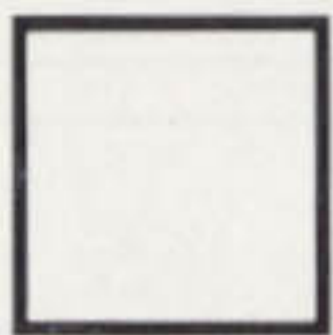
Square

Hexagon

Octagon

Equilateral Triangle

House

Cube

# Turtle Topic #3: Writing Simple Programs

You're getting good at this! Let's see what you can make Telly do in Level 3. First use the *Clear* Command or the Reset Button to clear your screen. Then press Keypad Button # or ✱. When the Option Screen appears, press Keypad Button 3.

Well, look at this. Level 3 shows a few new commands. Want to find out what they mean? Move the white box over to the *Crayon* Command. This time, press the side button *twice*—and watch what happens. Telly doesn't move, but on the first press of the button, the white box jumps down a line, next to the A. On the second press, the *Crayon* Command appears there, and the white box returns to the command line.

Now move the white box over to the *Move Forward* Command and press the side button. Choose number 12, then press the button two more times. What happens? A *Move Forward* Command appears after the *Crayon* Command.

Next, put the white box over the *Turn Right* Command and press the side button. Choose number 3 and press the button twice. The *Turn Right* Command now appears next to the *Move Forward* Command.

You've just created an ordered list of three commands for Telly. We call this list a *program*. In this case, the program is named A:
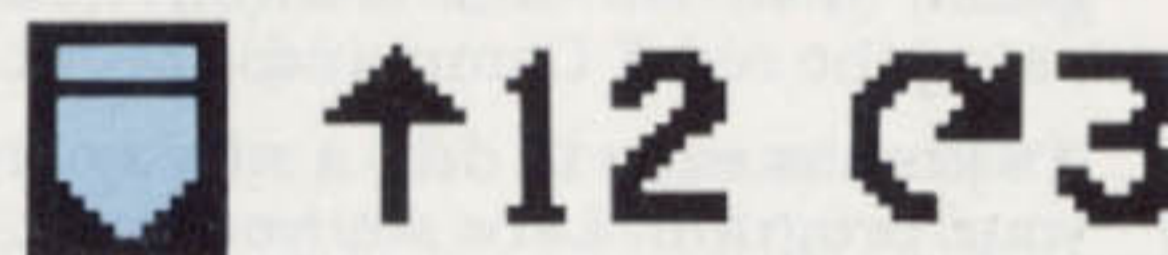
You can now instruct Telly to carry out the commands in your program, in order. Move the white box over to the A Command on the right side of the command line. Then press the side button and keep your eye on Telly. He carries out the commands in the order in which they appear in Program A. Press the button again, and Telly will carry out your commands all over again.

As Telly carries out the program, the commands he's following appear in the program lines below his yard. If you want, you can follow the white box as it moves through the program. This way, you can tell which commands make Telly move which way.

Now that you've seen Telly in action, maybe you want to change the instructions you gave him. To erase any command from your program, first place the white box over the red X Command. Press the side button. The white box turns red and jumps down to the first line of the program. Now place the red box over the command you want to erase. For now, place it over the *Crayon* Command. Press the side button again. Presto! The *Crayon* Command is gone. Anytime you want to erase pieces of a program, use the red X Command. If you want to erase an entire program, hold the side button down while using the red X Command.

It's just as easy to *add* a new command to your program. Let's say you want to add a purple *Crayon* Command to the beginning of Program A. Place the *white box* over the crayon and move the control stick up or down until you reach the purple one. Then press the side button. The white box jumps down to the bottom line of your program. Use the control stick to move the white box over to the command you want to put the new command *in front of*. For now, put it in front of the *Move Forward* Command. Press the side button. Your new command is added to the program, in the location you indicated, and the rest of the program is pushed to the right.

To make Telly carry out this new program, move the white box over to the A Command in the right-hand corner of the command line. Press the side button. Telly draws the same picture as before—only this time, he's carrying a purple crayon.

Now let's find out what that pointing hand is all about. Move the white box over to the command that looks like a *green hand pointing left*. Press the side button and watch what happens. You're left with the same commands as in Level 2—but with a new, red hand pointing right. Take a few minutes to experiment with these familiar commands. They work just like they did in Level 2, don't they?

It's easy to get the Level 3 commands back again. Move the white box over to the command that looks like a *red hand pointing right*. When you press the side button, the Level 3 commands reappear.
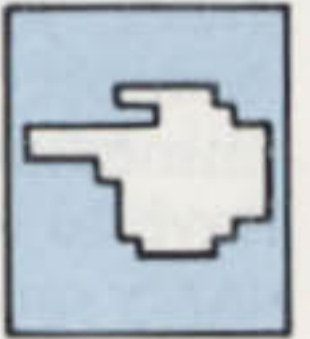
The green and red hands let you switch from Level 3 (programming commands) to Level 2 (immediate commands) and back again at any time. Have you figured out why you might want to do that? Think about it. Let's say you're writing a program in Level 3, and you want to clear your screen. If you switch to Level 2 you can use the *Clear* Command. Or, if you want to see how a command looks before putting it into your program, you can switch to Level 2 and try it out. Remember that Telly carries out your commands immediately in Levels 1 and 2, whereas in Level 3 you have to write a program first, then instruct Telly to carry out that program.

If you're happy with the result of a particular command you've tried out in Level 2, you can switch right back to Level 3 and put the command into your program. But if the command doesn't produce the results you wanted, you can change it and then add it to the program.

Summary of Turtle Topic #3

In this Turtle Topic, you learned how to write an ordered list of commands for Telly, called a *program*. You also discovered how to switch back and forth from "immediate" (Level 2) commands to "programming" (Level 3) commands. Here are the new Level 3 commands:

Brings you back to Level 2 (immediate) commands so you can try out your instructions before putting them in a program.

Brings you back to Level 3 (programming) commands.

Tells Telly to carry out the program.

Erases a command from the program. Also can be used to erase your entire program if you hold down the side button.

Lets you add a new command anywhere in the program.

Choose a Challenge

1. Practice writing and changing several programs of your own.

2. Make Telly repeat the same program over and over again.

3. Write programs telling Telly to draw the square, hexagon, octagon, and triangle shown in the Level 2 Challenges. (See page 14.)

Turtle Topic #4: Writing Longer Programs

Telly's done very well so far. You must be a good teacher! Ready for some fancy footwork in Level Four? First clear your screen, then press Keypad Button * or #. When the Option Screen appears, press Keypad Button 4.

As you can see, Level 4 has a few new commands. Before you can find out what they do, you'll have to erase the program left over from Level 3. To do that, use the red X Command several times in a row, until you've erased the entire program.

To find out how the new commands work in Level 4, you'll need to use the skills you learned in Level 3 to write some simple programs. Let's start with program A:

↑15 ↻6 = Program A.

When your program is finished, move the white box over to the A Command in the **right-hand corner** of the command line. Give the control stick one push in the "up" direction to change the A to B. If you keep pushing the control stick, you can go from A all the way to Z, and back to A again. For now, push the control stick until you get to B.

Notice that when you switch to B (or any other letter besides A, for that matter), the commands in Program A disappear from the screen. Don't worry, though. Telly will remember them! Now you can write Program B:

B ⬇ A 4 = Program B.

That A 4 command might look a little tricky, but actually it's quite simple. Just put the white box over the A Command on the left side of the command line (the one beside the *Clear* Command), press the side button, then push up on the control stick to reach number 4. Press the side button again, and the A 4 Command will be in Program B.

Now instruct Telly to carry out Program B. To do that, move the white box over to the B Command in the right-hand corner of the command line, and press the side button. Aha! Repeating Program A four times causes Telly to draw a square!
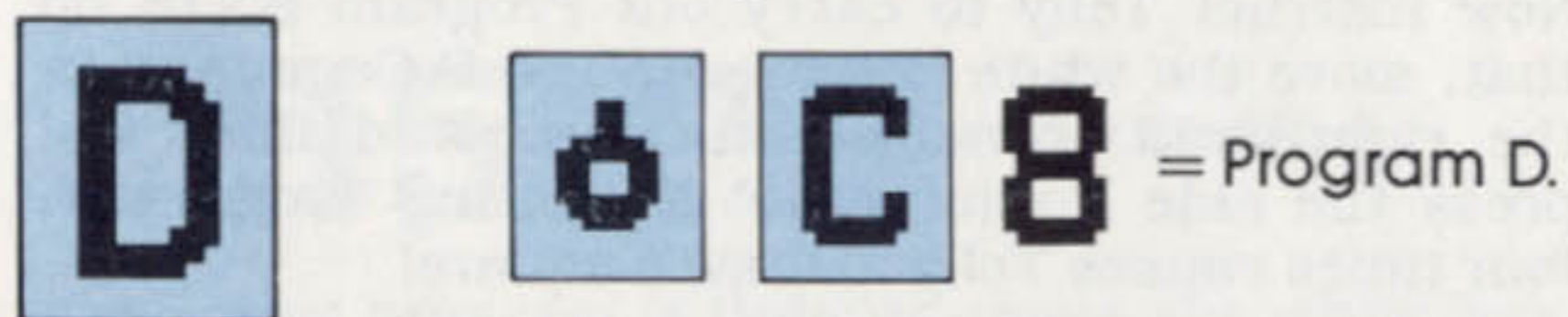
Notice that as Telly carries out a program, the commands he's following appear in the program lines below his yard. If you want, you can follow the white box as it moves through the program. This way, you can tell which commands make Telly move which way.

If you really want to see some fancy footwork, try building C and D programs. Change the *B* Command on the right side of the command line to *C*. Then build program C:

C **B** 1 ↻ **3** = Program C.
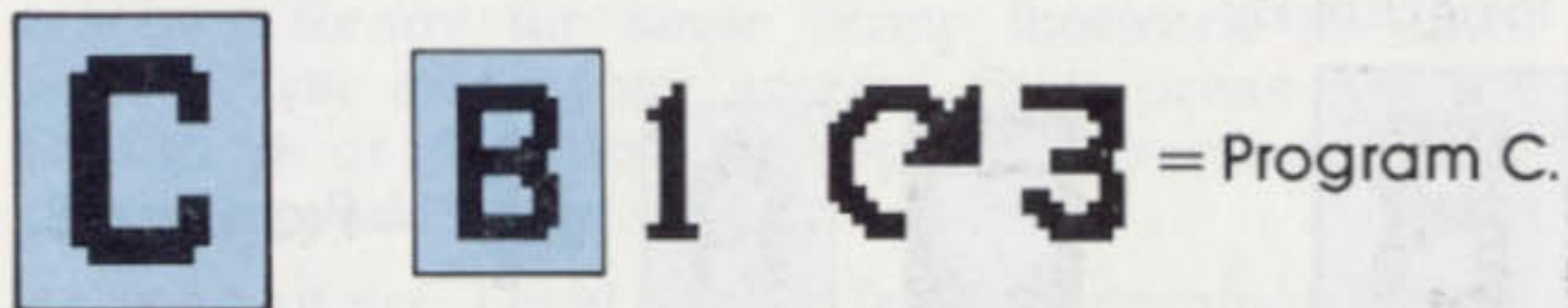
Can you remember how to put a *Letter* Command like *B 1* into the program? Move the white box over to the *Letter* Command on the left side of the command line. Push the control stick up until you reach B, then press the side button. Make sure the number beside B is 1.

Once Program C is complete, and before you ask Telly to carry it out, build Program D:

D ⟳ **C** **8** = Program D.

Why do you think you would start a program with the *Clear* Command? Watch what happens when Telly carries out Program D. Move the white box over to the *D* Command on the right side of the command line and press the side button. Notice that Telly cleared the old picture before drawing the new one. That's because you told him to. This is a good way to start a new program.

Turtles have a reputation for being slow movers—and Telly is no exception. If you want him to carry out programs a little faster, push the control stick up and release it *while he's drawing.* To slow him down at any time, push the control stick down. You can also stop Telly from moving at any time by pressing either side button. Now make Telly carry out Program D as many times as you want.

Remember how the X Command works? Try using it to change some of the commands in Program D. Start by putting the white box over the *Letter* Command on the right side of the command line. Change the letter to C. Then use the X Command to erase the *Turn Right 3* Command in Program C. Now you can put a new command in its place. Try inserting *Turn Right 4*.

Now that you've changed a command in program C, let's find out how that change affects Program D. First, change the *Letter* Command on the right side of the command line back to *D.* Press the side button and watch what happens. Telly's picture is a little different from the last one he drew from Program D. Try changing other commands in programs A, B, C, or D. See how many different pictures you can make Telly draw with these programs. If you want to work on an entirely new set of programs, use a new set of letters or erase old programs with the red X Command.
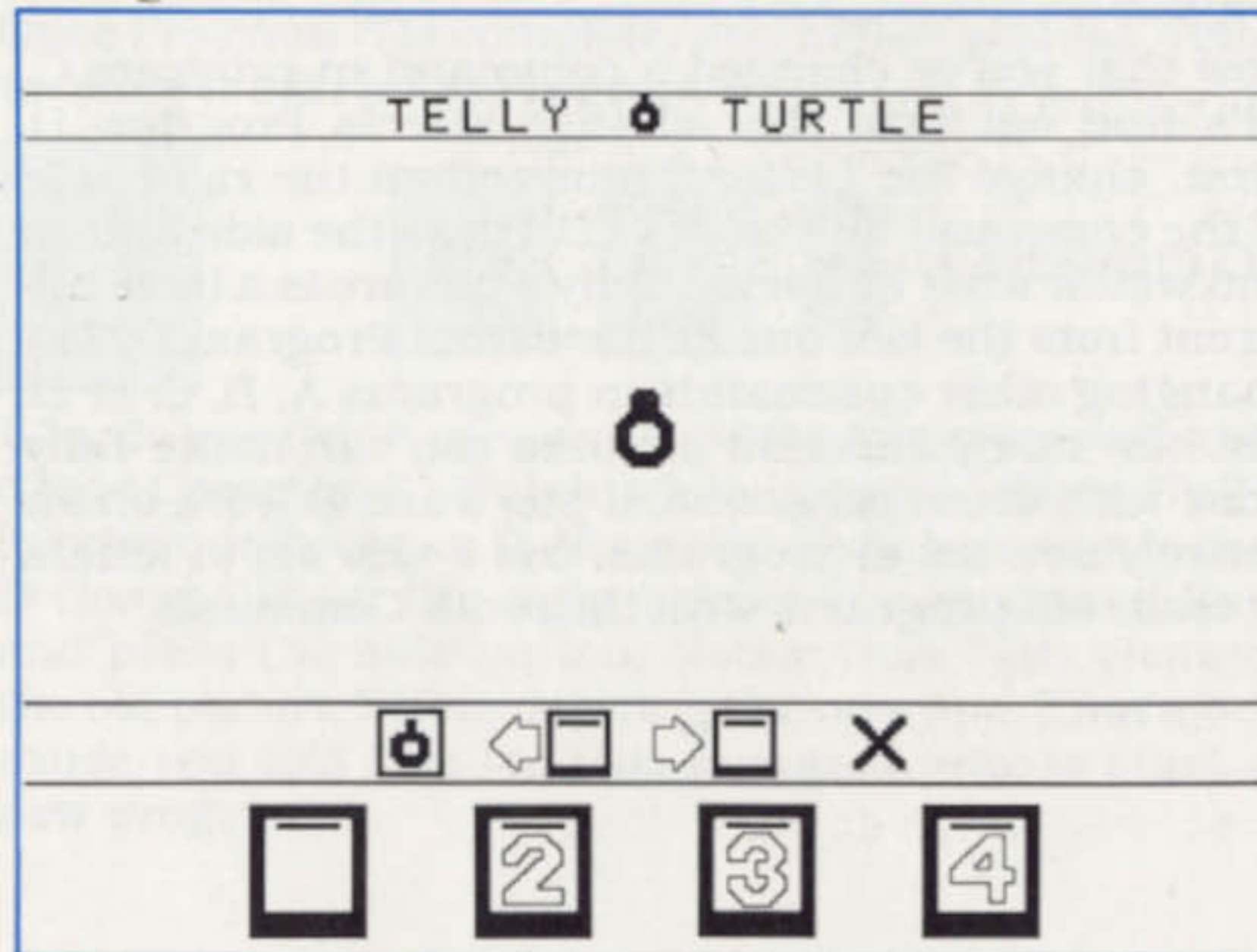
Using Telly's Storage Bins

Writing long programs for Telly to follow isn't really hard. But it does take time. Wouldn't it be nice if you could save some of your programs to use later in Telly's drawing lesson? Well, you can! Let's find out how.

Move the white box over to the last command in the right-hand corner of the command line. It looks like a file cabinet. Then press the side button. What do you see? Those four boxes below Telly's yard are *storage bins*. You can use them to hold programs while you're writing others or while Telly is drawing on the screen.

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│      TELLY   ○   TURTLE         │
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└─────────────────────────────────┘
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Filing Bin Screen

The numbers on the bins are there to remind you where you've put particular programs. The first bin is empty, so it doesn't have a number yet. Because Telly Turtle™ comes with three demonstration programs, Bins 2, 3, and 4 are always full when you turn on your machine. Later, you'll find out how to use these programs and how to store more than one program in a bin. For now, let's store the program you've been working on in the first empty bin.

Move the white box over to the *In Bin* Command and press the side button. What happens? The arrow jumps down and points at the first bin. Press the side button. A number 1 now appears in the bin, reminding you where you've stored your first program.

Notice that the white box now surrounds the command that looks like Telly. Press the side button. This takes you back to Telly's yard where you can start building a new program.

Now let's find out how to take a program out of a storage bin. Move the white box over to the *Bin* Command and press the side button. The bins appear. Then move the white box over to the *Out Bin* Command. Press the side button, and the arrow jumps down to Bin 1.
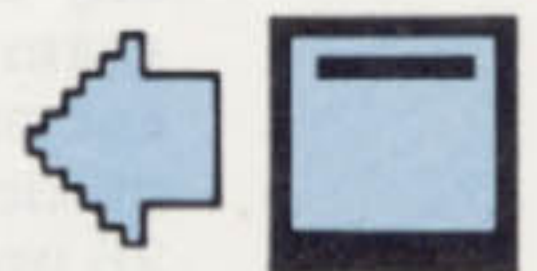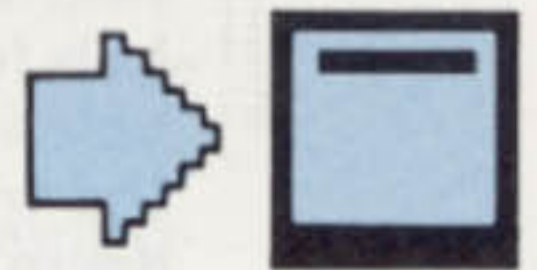
Use the control stick to move the arrow next to Bin 2, which contains a program for you to explore. Press the side button. The white box now surrounds the *Telly* command. Press the side button to return to Telly's yard with the program from Bin 2. To make Telly carry out this program, move the white box over to the *A* Command on the right side of the command line and press the side button. As Telly carries out the program, the commands he's following appear in the program lines below his yard. If you want, you can follow the white box as it moves through the program. This way, you can tell which commands make Telly move which way. Now, experiment with the programs in Bins 3 and 4. See what else Telly can draw!

Did you notice that anytime you take a program out of a bin, the border around the bin changes from green to gray? When the border turns gray, it means the bin is "open." You can store a new program in any open bin. Whenever you store a program in an open bin, the commands on the program lines below Telly's yard automatically disappear. You can store up to 26 programs (A–Z) in one bin. Anytime you use the *In Bin* Command, all of the programs stored in Telly's yard are stored in the bin you've selected. When you use the *Out Bin* Command you bring all of the programs stored in the bin back to Telly's yard.

Erasing Programs From a Bin

You can erase the programs in a bin at any time. First, press the *Bin* Command to go to the bins. Then move the white box over the black *X* Command on the right side of the screen. Press the side button. Then move the white box over to the bin containing the programs you want to erase, and press the side button one more time. The bin is now open and you can store new programs in it.

Remember that Telly's bins are for **temporary** storage only. If you press the Reset Button or turn the power off on your machine, the programs you've created and stored disappear. However, the demonstration programs you discovered in Bins 2, 3, and 4 reappear when you turn the power on—even if you've stored your own programs over them in a previous drawing lesson.

Summary of Turtle Topic #4

In Turtle Topic #4, you learned how to build a long program out of shorter programs and how to change Telly's drawing speed. You also learned how to temporarily save the programs you create in Telly's storage bins, and how to take them out so you can use them. Here are the new Level 4 Commands:

A (left) The *Letter* command on the left side of the command line lets you use one program in another program. If this *Letter* command says A, for example, and you move the white box over it and press the side button, Program A will become part of whatever program you're building.

A (right) The *Letter* command on the right side of the command line lets you build on or change and carry out programs you've already created.

⬜ This command lets you see the bins.

🔘 Takes you back to Telly's yard with the programs you've taken out of a bin.

⬅⬜ Takes programs from the bin so you can bring them to Telly's yard.

✖ Erases programs in one of the bins.

➡⬜ Saves programs in one of the bins.

Choose a Challenge

1. Use the Level 4 commands to write programs that will make Telly draw the square, hexagon, octagon, equilateral triangle, house, and cube shown on page 14.

2. Write a program that will make Telly draw the largest rectangle possible on the screen. Be careful not to crash into the wall!

3. Write a program that will make Telly draw the largest triangle possible on the screen.

4. Take the program out of Bin 2 and change it to make the cube red.

5. Take a maze program out of Bin 3 or 4 and take it to Telly's yard. Press Keypad Button ✱ or # to return to the Option Screen, then choose Level 1 or 2. Now use the Level 1 commands to make Telly move or draw through the maze. See how long it takes you to make him go all the way through.

6. Take a maze program out of Bin 3 or 4 and bring it to Telly's yard. Choose a letter command not used in the bin program, then write a program that will make Telly move through the maze.

Telly Tips for Parents

Telly Turtle™ is based on the use of Turtle Graphics and Graphic Symbol Commands—two ideas that have received a lot of attention from educators lately.

Turtle Graphics was developed by Seymour Papert and his colleagues at the Massachusetts Institute of Technology (MIT) Logo Lab. Actually, Turtle Graphics is a set of activities designed for use with the Logo programming language. Users make a small white triangle, the turtle, move by typing in commands. Each command must be followed by a number that tells the turtle how far to move in a particular direction or how many degrees to turn.

Logo is a powerful language with exciting possibilities for education, but it can be intimidating and frustrating to children who have not yet developed typing or spelling skills. That's where Telly Turtle™ comes in. Designed to be a pre-Logo experience, the program combines Turtle Graphics with Graphic Symbol Commands. Children give Telly a series of commands just as they would in Logo, but those commands are represented pictorially, by graphic symbols on the computer screen. Children use the control stick to select commands and the side buttons to execute them. It's as simple as that—no typing or spelling involved!

To help your child get the most out of Telly Turtle™, we've provided step-by-step lessons (Turtle Topics) at the beginning of this booklet. The lessons are simple enough for many elementary school children to follow. Pre-readers and beginning readers, however, will need your help.

Although the lessons are presented sequentially, in the order children are likely to proceed, your child may prefer to jump from one lesson to another in no particular order at all. That's okay, too. In fact, children sometimes learn more just by fooling around with Telly Turtle™.

As you experiment with Telly Turtle™, you'll find that the program works in a very logical way. If your child gets stuck on a particular problem, encourage him or her to go back over the program, step by step, to find out what went wrong. With Telly Turtle™, solving problems is half the fun!

Food for Thought

As children play with Telly Turtle™ they give their thinking skills a real workout. Problem solving, logical thought, organization, sequencing, measurement, spatial relationships, and a host of other important concepts all come into play as children figure out how to make the turtle draw their pictures.

In addition, Telly Turtle™ introduces kids to computer programming. Teaching the turtle to draw increasingly complex pictures gives them a chance to explore a variety of computer concepts, such as the use of commands, programs, subroutines, recursion and, of course, computer graphics. And by rewriting programs so they produce better (or just different) results, kids can experiment with debugging techniques as well.

We hope Telly Turtle™ provides your child with hours of fun and learning. And we urge you to experiment with the program yourself. Learning, after all, is a lifelong process!

LIMITED WARRANTY

Coleco warrants to the original consumer purchaser in the United States of America that this video game cartridge will be free of defects in material or workmanship for 90 days from the date of purchase under normal in-house use.

Coleco's sole and exclusive liability for defects in material and workmanship shall be limited to repair or replacement at an authorized Coleco Service Station. This warranty does not obligate Coleco to bear the cost of transportation charges in connection with the repair or replacement of defective parts.

This warranty is invalid if the damage or defect is caused by accident, act of God, consumer abuse, unauthorized alteration or repair, vandalism, or misuse.

Any implied warranties arising out of the sale of the video game cartridges including the implied warranties of merchantability and fitness for a particular purpose are limited to the above 90 day period. Coleco shall in no event be liable for incidental, consequential, contingent or any other damages.

This warranty gives you specific legal rights, and you may have other rights which vary from State to State. Some states do not allow the exclusion or limitation of incidental or consequential damages or limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you.

SERVICE POLICY

Please read your Video Game Owner's Manual carefully before using the product. If your video game cartridge fails to operate properly, please refer to the trouble-shooting

checklist in the Owner's Manual for your particular video system. If you cannot correct the malfunction after consulting the trouble-shooting checklist, please call Customer Service on Coleco's toll-free service hotline: 1-800-842-1225 nationwide. This service is in operation from 8:00 a.m. to 10:00 p.m. Eastern Standard Time, Monday through Friday.

If Customer Service advises you to return your video game cartridge, please return it postage prepaid and insured, with your name, address, proof of the date of purchase, and a brief description of the problem to the Service Station you have been directed to return it to by the toll-free service information. If your cartridge is found to be factor.y defective during the first 90 days, it will be repaired or replaced at no cost to you. If the cartridge is found to have been consumer damaged or abused and therefore not covered by the warranty, then you will be advised, in advance, of repair costs.

If your cartridge requires service after expiration of the 90 day Limited Warranty period, please call Coleco's toll-free service hotline for instructions on how to proceed: 1-800-842-1225 nationwide.

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