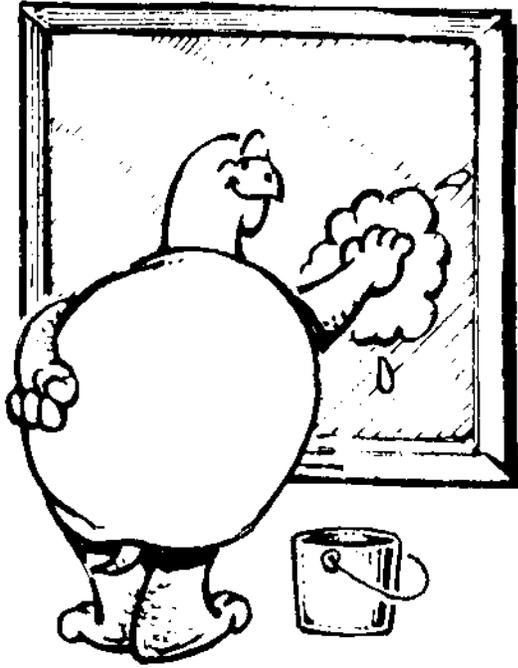## <u>Chapter 1. Getting Started</u>

"Hey, Logy, whatcha doing?"

"What's it look like I'm doing. I'm cleaning the windows so we can get started on our new adventure."

"Can't you leave the housekeeping until later. We've got Logo work to do!"

"Well, that's why I have to get the windows ready. This time we're going to use Microsoft Windows to discover lots of things we can do with Logo!

"You know, Ernestine even brought along her whole family…that's more than 1,000 turtles for you to play with.

"And you can now play music through your new sound card. You can even use Logo to make up your own Windows programs.

"Just wait until you see the trouble you can get into!"

"Yeah, yeah, yeah" Morf said, bounding around very excited. "What do we have to do? When can we get started. I've got lots of ideas I want to try out!"

_____

**Installing
MSW Logo**

OK, OK! Let's get started!

Since you were given MSW Logo with this book, the first thing you need to do is install MSW Logo on your computer…that is, after you make a backup of the diskette.

To install MSW Logo and the sample procedures for Windows 3.1:

1. **Make sure you are at the MS-DOS prompt, not in Windows. Put the MSW Logo diskette in drive A and type a:install. (a:inst95 for Windows 95.)**

2. **Then follow the instructions on the screen…the rest is automatic.**

3. **Remember...after MSW Logo is installed, you should exit Windows right away to install the procedures from this book and LOGO32.EXE, if you are using WIN32. The last step is to erase the temporary directory and files that were created for the installation. This is done automatically.**

4. **Be sure to read the README file that is copied to your MSW Logo directory. It tells you about the procedures included with the book. Just type README.**
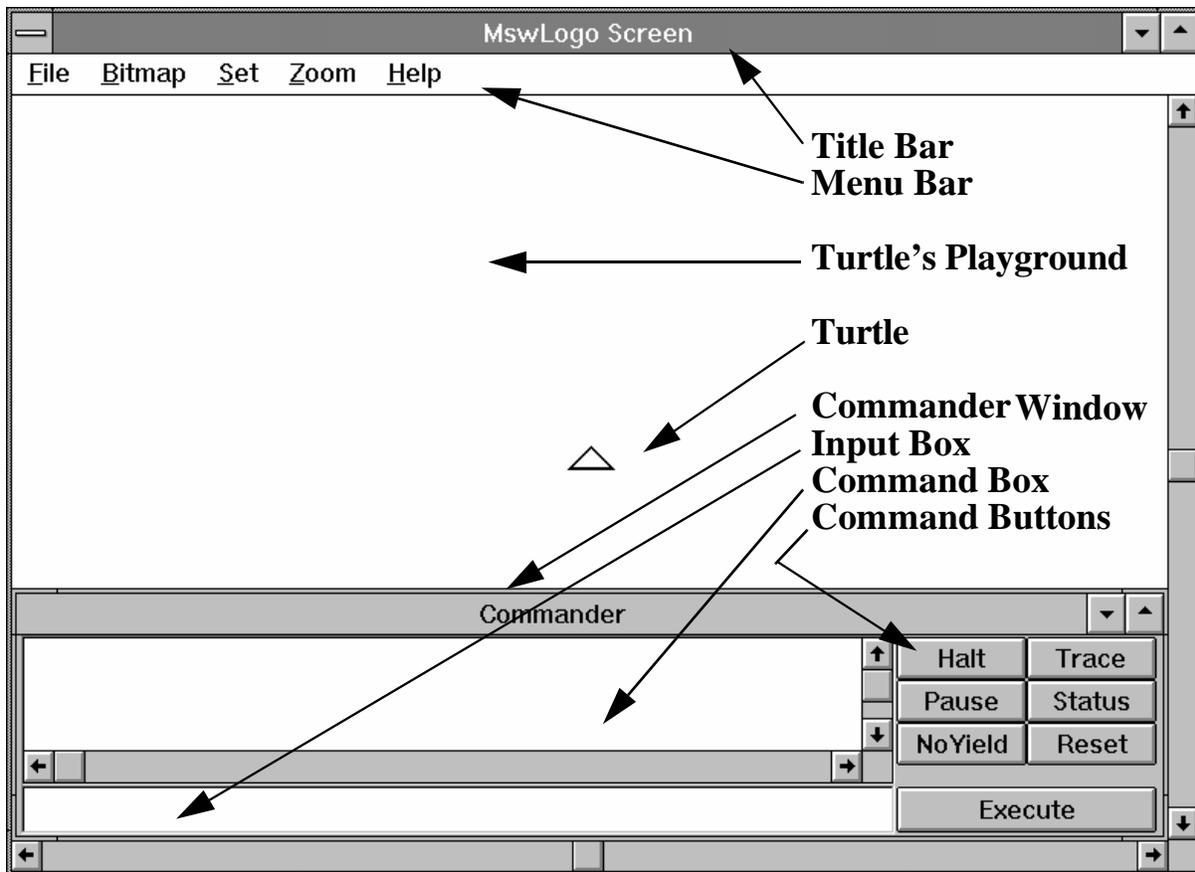
_____

Looking at Logo

When you install MSW Logo, Windows puts it in its own program group or folder. Open the program group or folder and there's Logo in its own little window.
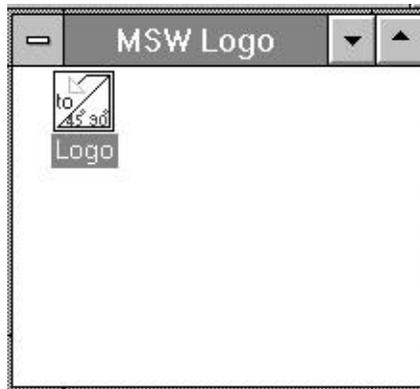
Double-click on the Logo icon in that little window to open MSW Logo.

_____

Parts of the Screen

There's Ernestine sitting at right in the middle of her playground. Ernestine looks like a pointed arrow but she's really a turtle who does just about anything you ask her to do. If she doesn't understand, she'll tell you.

Now let's take a look at the rest of the MSW Logo screen.

It's like many Windows screens. The Title Bar is at the top. This tells you what window you're looking at.

The Menu Bar is right below the Title Bar. It holds the names of menus we'll describe a bit later.
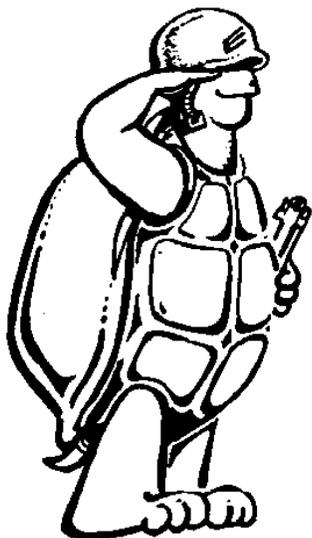
Down below the playground is the Commander. This where the action is.

The big space in the Commander window is the Command Box. This box keeps a list of what's going on. If something goes wrong, you'll see a message here.

Below the Command window is the Input Box. This is where you type your commands.

Over on the right side, there's a bunch of buttons that can make things a little easier.

The Commander window is a separate window from the MSW Logo window. That means you can move it around, make it smaller or larger, or you can change it into a little icon. We work with this window a lot. So if you want to practice a bit, go ahead.

1. **Click in the Title Bar where you see the word, Commander.**

   The title bar of the Commander window changes color.

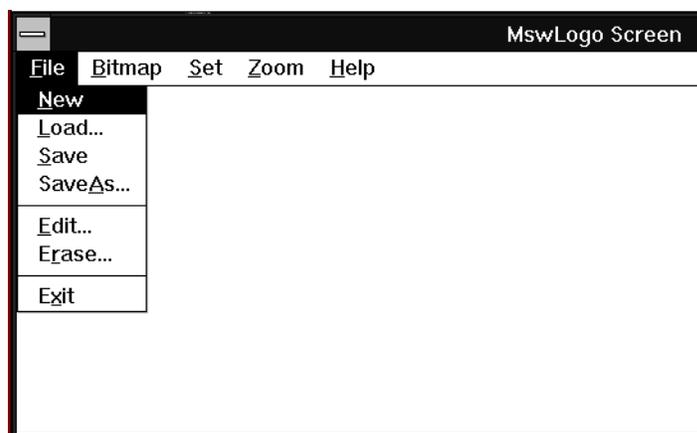2. **Press and hold the left mouse key down. Then drag the Commander window around the screen.**

   The Commander window moves as you move the mouse.

3. **Move the Commander window back where it is supposed to be and release the mouse button.**

_____

MSW Logo Menus

There are five menus in the Menu Bar. You know what a Menu is, don't you? You click on the word and up pops a list of choices.

```
┌─────────────────────────────────────────────────────┐
│ ▭                                    MswLogo Screen   │
│ File  Bitmap  Set  Zoom  Help                         │
│ New                                                   │
│ Load...                                               │
│ Save                                                  │
│ SaveAs...                                             │
│ ─────────                                             │
│ Edit...                                               │
│ Erase...                                              │
│ ─────────                                             │
│ Exit                                                  │
│                                                       │
└─────────────────────────────────────────────────────┘
```

<u>File:</u> This gives you a list of things you can do with your procedures; things like Load them into your workspace, Save them, Save them using another name, Edit them, and Erase them.

<u>Bitmap:</u> Bitmap is a technical term for picture. This menu includes commands for working with pictures that you design.
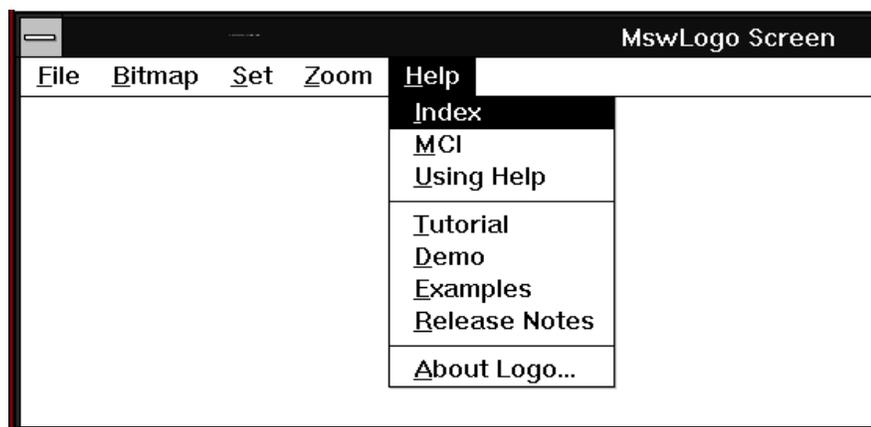
<u>Set:</u> You can change the type of letters and numbers that Logo uses by setting the "font" in this menu. You can also set colors.

<u>Zoom:</u> You can Zoom in on your pictures to make them bigger. Or you can Zoom out to make them smaller.

_____

Where to Go For Help

If you have questions about how to do something in MSW Logo, you can click on Help. The Help Menu pops up and gives you some choices.

The Help Menu gives you some choices:

Index: **Click on Index to see a list of the chapters in the MSW Logo On-line Help.**

MCI: **This is for Multimedia programmers, something we won't be covering in this book.**

Using Help: **This is a neat section. It will help you if you need help using Help.**

Does that make sense?

Tutorial: **That didn't make it in this version. This book will have to do. You'll find the tutorial on CompuServe and on the MSW Logo home page on the Internet.**

http://www.ultranet.com/~mills

Demo: **Select Demo to see a neat demonstration of some of the things that MSW Logo can do.**

Examples: **Examples are just that, examples of MSW Logo procedures. Study these procedures after you finish this book to discover lots of other things you can do with MSW Logo.**

Release Notes: **This tells you all about the things that MSW Logo has to offer. It's the same as the MSWLOGO.TXT file in your MSW Logo directory.**

About Logo: **This tells you who developed MSW Logo. It also provides e-mail addresses where you can contact the developers.**

_____

Commander Buttons

Morf loves buttons and things. So here's a list of the Commander buttons. We'll talk more about them later as we go along.

Halt: This stops all the Logo action right away. It does the same thing that the HALT command does.

Trace: This turns the Trace command on. Click on it to turn the Untrace command on.

Pause: Logo stops the action temporarily and waits for the Continue command.

Status: The Status button brings up a Status window that tells you what's going on.

Yield: This tells Logo not to allow other programs to run while Logo is running.

Reset: This button is like the Clearscreen command. It resets or clears the screen.

Execute: This is like pressing the Enter key. It tells the turtle to execute your procedure.

_____

Meet the Turtle

Time to get down to business!
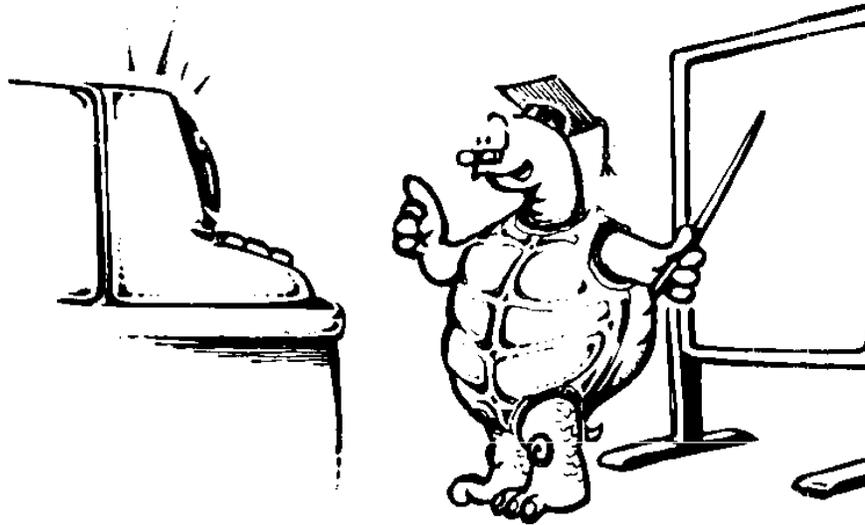
Look down in the Input Box. If you don't see a blinking line over on the left side, click in the Input Box. That blinking line is "the cursor." It moves every time you type something in a window, dialog, or text box.
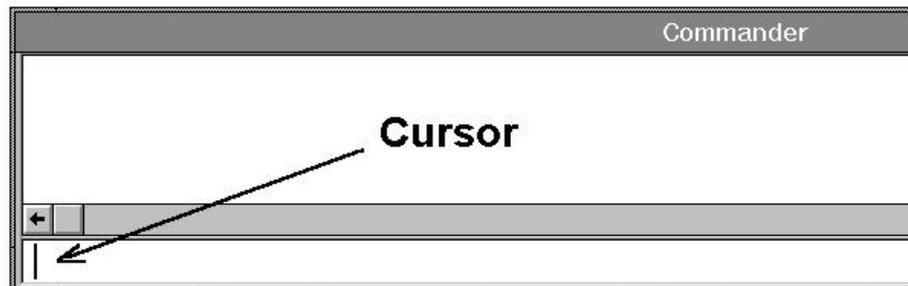
But you probably knew that already. So, let's get on with the fun!

Ernestine carries a pen that she uses to create all sorts of colorful drawings.
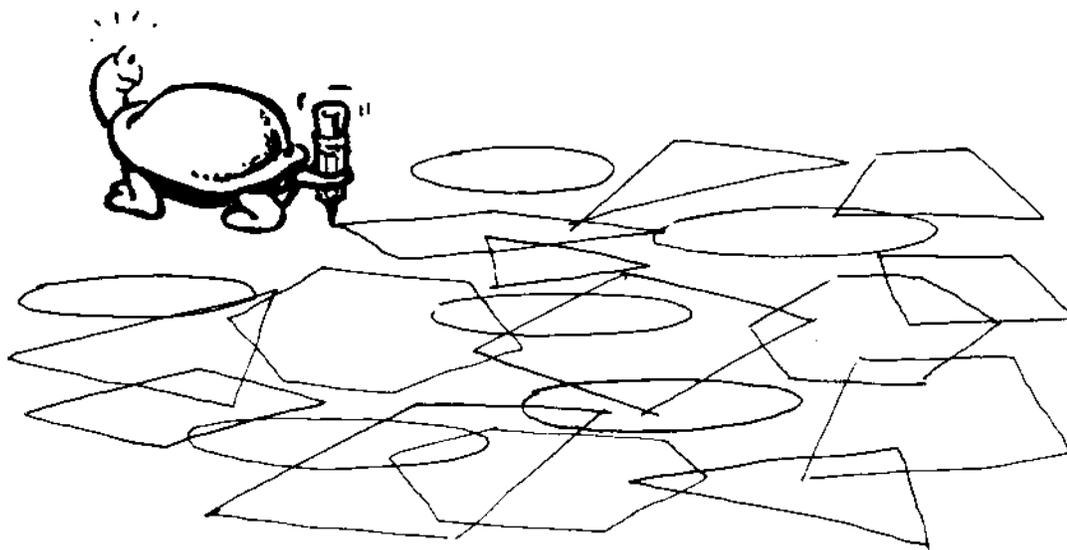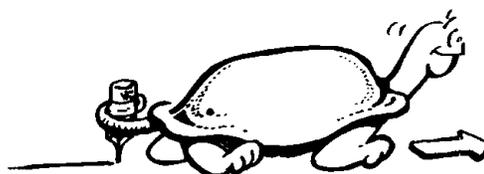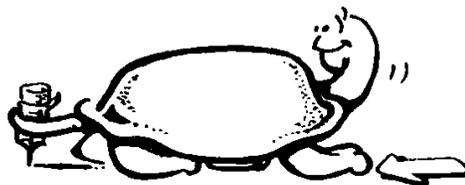
      But remember, you are the one who has to tell here exactly what to do.

_____

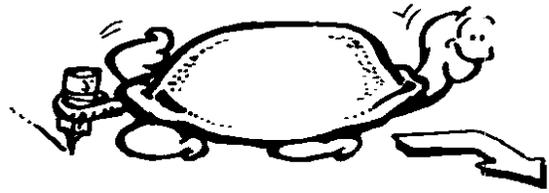## Turtle Directions

    She can go…
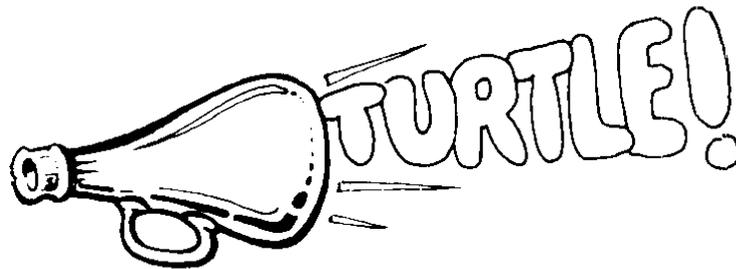
FORWARD

BACK

LEFT
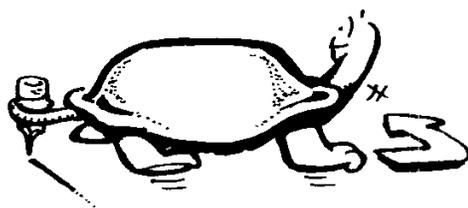
RIGHT

When you tell the turtle to move, you have to tell her how many turtle steps to take. Go ahead. Try it.

1. Type **FORWARD.**

2. Press the **SPACE bar.**

3. Then type a pretty big number... like 200 or something like that.

4. For the turtle to hear you, you have to press **ENTER.**

If you accidentally hit the wrong key and end up with something like **FORWRD 200,** the turtle tells you…

I don't know how to **FORWRD.**

She's nice about it. So just type the command again, but without any more accidents.

To turn the turtle, tell her to turn **RIGHT** or **LEFT.** Again, just as you have to tell her how many steps to take

to move forward or back, you have to tell her how many turtle turns to make.

RIGHT _____

Go ahead! Type in a number…not an itty-bitty number…make it a pretty big one.

What happened? The turtle turned to look in another direction, right?

OK, now turn her back to the direction she was heading before.

Type LEFT _____ and use the same number of turtle turns that you used before. Remember to press Enter.

Now the turtle is looking up toward the top of the screen again. How many turns does the turtle have to make to look at the side of the screen (or page)?

What do you think? Why not write down your answers?

_____ was too _____ (too big or too little?)

_____ was too _____

_____ was too _____

_____ was too _____

The Answer is _____!

This is the cool part of Logo. You get to discover all sorts of new things all by yourself. You found that the turtle had to turn 90 turtle turns to look at the side of the screen.

Now, turn the turtle back to the top of the screen. What do you have to type to do that?

If you said LEFT 90, give yourself a double-dip ice cream cone!

Now…what do you have to do to get the turtle to face the bottom of the screen?

Well, you could tell the turtle to face the side twice, right?

RIGHT 90   RIGHT 90

That should work, shouldn't it?

What would happen if you add the 90 and 90 together?

Did you get 180? Morf did. Why not give that a try?

RIGHT 180

That did it! There's the turtle facing in the opposite direction.

So…when you tell the turtle to go FORWARD or BACK, the turtle moves forward or back the number of turtle steps you tell her to go. When you tell the turtle RIGHT or LEFT, she turns in that direction the number of turtle turns you tell her to turn, but she doesn't move.

Get the idea? Try a few moves on your own.

FORWARD 100   RIGHT 90

FORWARD 100   RIGHT _____

BACK _____   RIGHT _____

BACK _____   LEFT _____

LEFT _____   FORWARD _____

That's it. Now just mess up the screen real good with turtle tracks. As you type in numbers watch what the turtle does. Pretty soon, you'll be able to tell the turtle just where you want her to go.

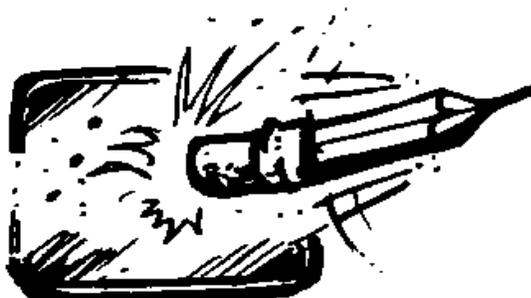Now have some fun practicing.

_____

Cleaning Up After Yourself

By now the screen is either a work of art or a big mess. So you'd better clean it off. To clear the screen, type…

CLEARSCREEN

You can also set the RESET button. That's one of the Command buttons down in the Commander.

Everything on the screen is erased and the turtle goes home.

To clear the screen but leave the turtle in the same place, type CLEAN.

Yep, that's the turtle's home, right there in the middle of the Window.

OK, so maybe Home doesn't look exactly like the picture. But you get the idea.

When you tell the turtle to go HOME, she goes back to the middle of the screen and faces the top of the screen.

Remember this, you'll use the HOME command a lot.

_____

Rabbit Trail 1. Turtle Games Off the Computer

Have you ever played SIMON SEZ or MOTHER, MAY I? Why not try these games using Logo commands instead of the regular things you do? Logo commands add some new fun to the old game.

Simon sez **FORWARD 5**
Simon sez **RIGHT 90**
FORWARD 5

For another change, let's take a turtle walk that's a lot like these games. This one is fun to play with your class in school or with your family or friends at home.

One player is the turtle and one is the computer operator. The idea is to tell the turtle how to walk through a big letter or shape. The others in the room have to guess what the turtle is drawing.

The turtle starts in the middle of the room. The operator then tells the turtle how to move. The commands listed below will give you an idea.

FORWARD 10 turtle steps.
Make them little steps if you are in a small space.

RIGHT 150 turtle turns.
Remember how you turned right before? You tried RIGHT 90 to turn to the side. Then you tried RIGHT 180 and you turned around to face the opposite direction. 150 is closer to 180 than it is to 90. So you can make a good guess about how far to turn. It will do just fine.

FORWARD 11 turtle steps

LEFT 150 turtle turns.

You don't have to be reminded you about this one, do you? I bet you know which direction you should be heading.

FORWARD 10   turtle steps

Now type these steps on the computer. Of course, you don't need to type the "turtle steps" or "turtle turns."

What letter does this shape look like? How would you make this shape bigger on the screen?

If you make the turtle move five times as many turtle steps forward, do you have to make the turtle turn five times as many turns?

_____

SPECIAL NOTE: The words you type...FORWARD, RIGHT, BACK, and LEFT...are Logo "primitives." Primitives are the action words that are the basic building blocks of Logo procedures. They're the things MSW Logo can do. As you will see later, primitives are procedures the turtle follows to make things happen.

_____

Let's experiment. (Morf loves experimenting.) Type this…

FORWARD 10 * 5
RIGHT 150
FORWARD 11 * 5
LEFT 150
FORWARD 10 * 5

(The * sign tells the turtle to multiply 10 times 5 and move that many turtle steps. You'll learn more about Logo arithmetic later on. If you want to take a peek now, that's OK.)

What happened?

The shape got bigger. But it still looks like the letter N doesn't it.   So I guess that means that turtle steps and turtle turns really *are* different!

Changing the number of turtle steps changes the size of the shape.   But it's still the same shape. Changing the number of turns changes the shape itself.

Go ahead...change the number of turtle turns. Change 150 to 120. What happens when you change it to 180? Why not try 310? As you play around with numbers, you'll begin to see how you can make the turtle do just what you want it to do.

Now...think about this. What would happen if you changed the * 5 to a * 8? No…don't do it on the computer. Draw the change you think this might make. Then see if you were right.

Don't worry about what you're drawing or what the turtle's trail looks like. This is the time to explore...to discover what the turtle can do with the four commands… FORWARD, BACK, RIGHT, LEFT.

Go on...give it a try!

_____

Learning Turtle Shorthand

Now that you know what these commands are and what they will do, let's make things easy. You can type these commands in shorthand like this.

FD   is the same as   FORWARD

BK   is the same as   BACK

RT   is the same as   RIGHT

LT   is the same as   LEFT

CS   is the same as   CLEARSCREEN

Get the idea?

Good...then let's try a few. Here's a list of commands. Some are already done for you. Why don't you fill in the blanks. Then type your own commands on the computer.

FD 100   RT 120   FD 60   BK 30

LT ____   FD ____   RT ____   BK ____

_____

The Turtle's Pen

So far we've been talking about the turtle drawing all the time. Ernestine always has her pen down to draw on the screen.

But what if you want to move the turtle without drawing? What do you do then?

You guessed it...you tell the turtle to pick up the pen. Try it.

PENUP or PU
FD 100 RT 90
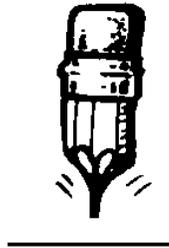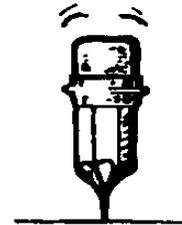
PENUP or PU   **PENDOWN or PD**

To tell the turtle to start drawing, tell her to put the pen down.

PENDOWN or PD
FD 50

Awfully simple? Or simply awful?
Don't think you're going to get off this easy! There's more to it than that.

In MSW Logo, the turtle can do three things with the pen when it is down: **PAINT, ERASE,** and **REVERSE.**

PENPAINT
The turtle draws lines.
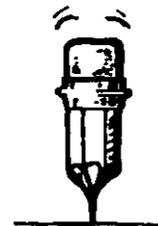
PENERASE
The turtle erases its steps.

PENREVERSE

This command turns the turtle into a little "troublemaker." If there's a line in the turtle's path, it is erased. If there is no line, the turtle draws one.

Let's put these commands to work.
_____

Erasing

Did you ever type something you didn't mean to type?

Well, all you have to do to change it is to back up and type over the things you want to change. You can use the Backspace key to back up…that's the one with the arrow pointing to the left. That erases what you've type one letter at a time. Then type what you want to change again.

Or you can use the DELete key. That one erases what you typed as you move backwards. Go ahead, give it a try. You'll see the difference.

The other way to erase is to drag the mouse over the text you want to change. Drag means to put the cursor in front of the section you want to change. Press and hold the left mouse button. Then drag the cursor…move the mouse… over the words to be changed and release the left mouse key.

The marked section reverses color.

To change what you've marked, just start typing. The marked section disappears.

OK...you know you can erase things that you type. But what about things you draw? Think about this.

You have just finished a great drawing when you see a line that's too long. You don't want to start all over again. All you want to do is erase that one line.

Let's try it. Draw this shape.
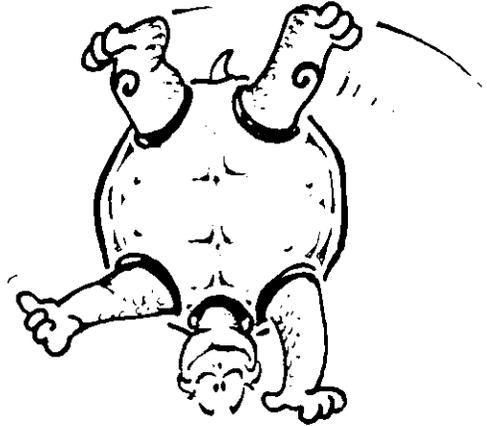
FD 50

RT 120

FD 50

RT 120

FD 60

Rather than erase the entire drawing because the last line is too long, just change what the pen is doing. Since you want to erase that last line, you just move the turtle back over it.

Type this…

PENERASE or PE
BACK or BK 60

     What happened? Just as important, what do you do now?

     If you said to tell the turtle to paint again, CONGRATULATIONS! Give yourself a huge Gold Star…and throw in a double-dip ice cream cone too!

     To start drawing again, tell the turtle to PENPAINT.

OK, now type…FD 50

Now what do you see?   Looks better, doesn't it.

Try this...	Now try this...
FD 50	RT 90
RT 45	FD 75
FD 75	LT 90
PE	FD 100

BK 75   PD

LT 90   BK 50

_____   _____

Sometimes it's fun to just play around on the screen to see what you can do. Other times it is fun to plan a drawing on paper first, and then put it on the screen.

Why not give that a try?

_____

Rabbit Trail 2. Making a Pencil Turtle

Here's an idea to help you make a turtle drawing on paper. Let's make a turtle for your pencil. Use one like that is shown below or make your own turtle.

To make your own…

Using your pencil, make a drawing of an egg on a piece of heavy paper or cardboard.

If you're at home, maybe you could ask your Mom or your Dad for help tracing a real egg.

But be careful, you don't want egg all over your drawing.

Hold the egg carefully and then trace around the egg to draw an oval shape. This looks like a turtle shell, doesn't it.
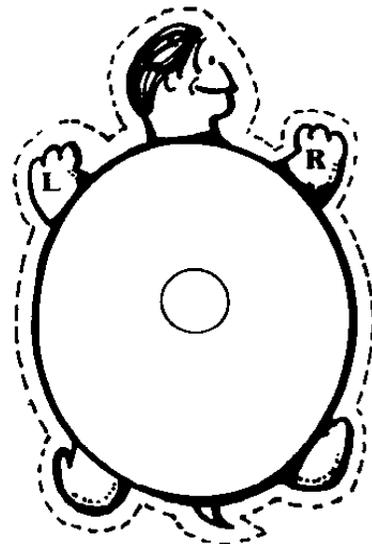
Now put a small circle in the middle of your turtle shell about the size of your pencil. At the top of the shell, draw the turtle's head. Then draw the turtle's right legs. Then draw the turtle's left legs. Now you're ready to cut out your turtle.

Carefully cut out your turtle. Then slide the turtle up near the top of your pencil so you can hold it underneath the turtle. If it seems to slide around too much, use a piece of cellophane tape to hold it in place.

There's a whole bunch of turtles on the next page if you want to give some to your friends. Just make a copy of the page or just cut them out.

Ready to go? Make sure the turtle is looking at the top of the paper. Then give the pencil turtle a command like...

FD 50

When you want the pencil turtle to turn, turn your pencil so the turtle is facing where you want to draw your next line.
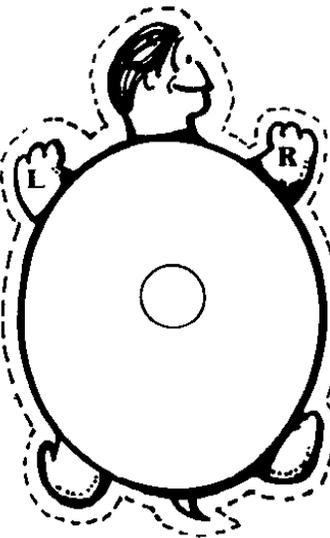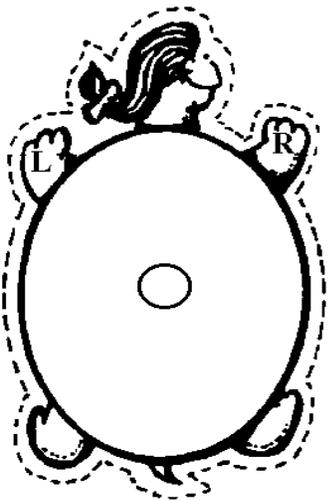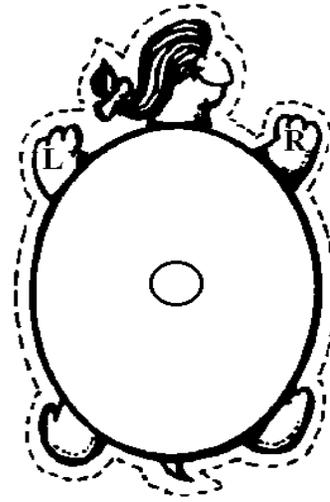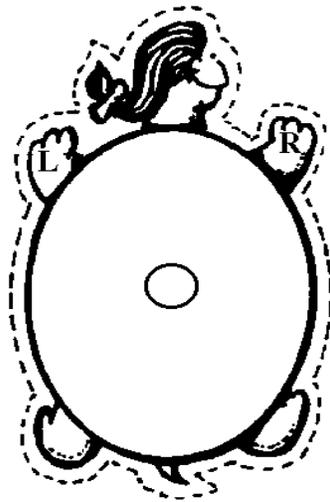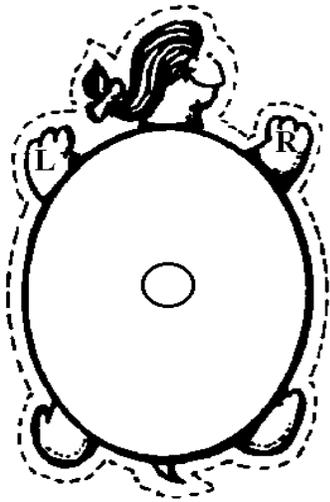
RT 90
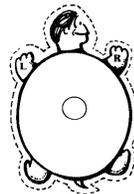
FD 50

LT 90

FD 50
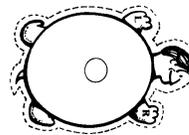
Get the idea!
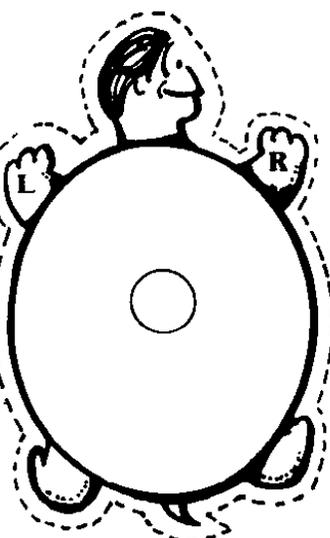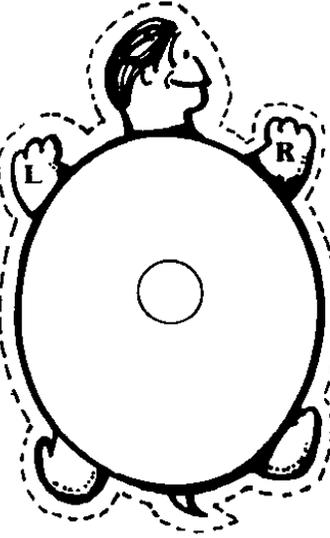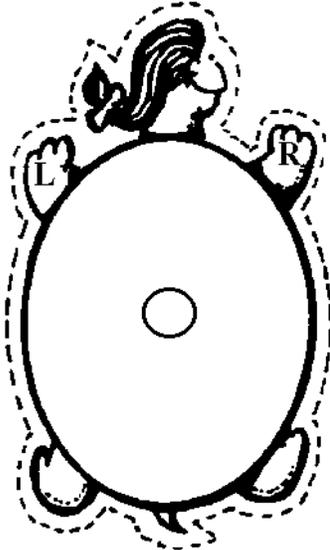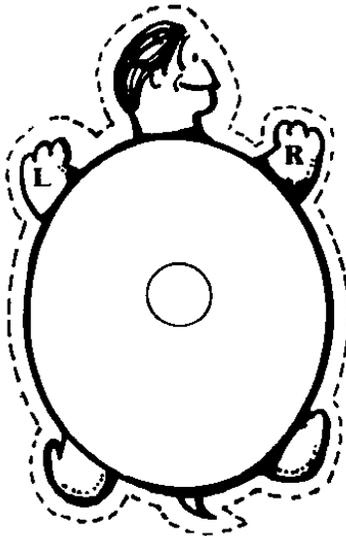
When you want to plan a drawing on paper, your Pencil Turtle can help you think about the moves the turtle will have to make on the screen.

To help you even more, while you're making a drawing on paper, make a list of the commands you give your pencil. Then you can type them on the computer.

_____

Let's Review

You know how to tell the turtle to go FORWARD, BACK, LEFT, and RIGHT. You can tell to turtle to draw with the PENUP or the PENDOWN.

Do you remember where HOME is?

What happens when you tell the turtle PENREVERSE?

What about CLEARSCREEN? CLEAN?

OK! Time to do some more exploring!
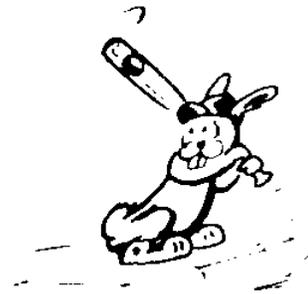
_____

Rabbit Trail 3. Turtle Baseball

Everybody likes baseball!

Well, just about everybody.

Anyway, you'll find that playing baseball on the computer can be lots of fun.

Put four small stickers on the screen. If you don't have stickers, use tape. Don't press to hard. You want the stickers or tape to stick but you also want to be able to unstick them, too.

Can you put the turtle on First Base in no more than three moves? Good, you're safe.

Now go to Second Base in three moves or less. Then go to Third. And now go Home.

Get some friends together and see who can run the bases in the fewest number of moves. To add some more fun to your game, move the stickers to different spots on the screen.

Copy the next page onto a sheet of plastic. Then tape it over the screen. Using this picture, you don't need the stickers.

_____
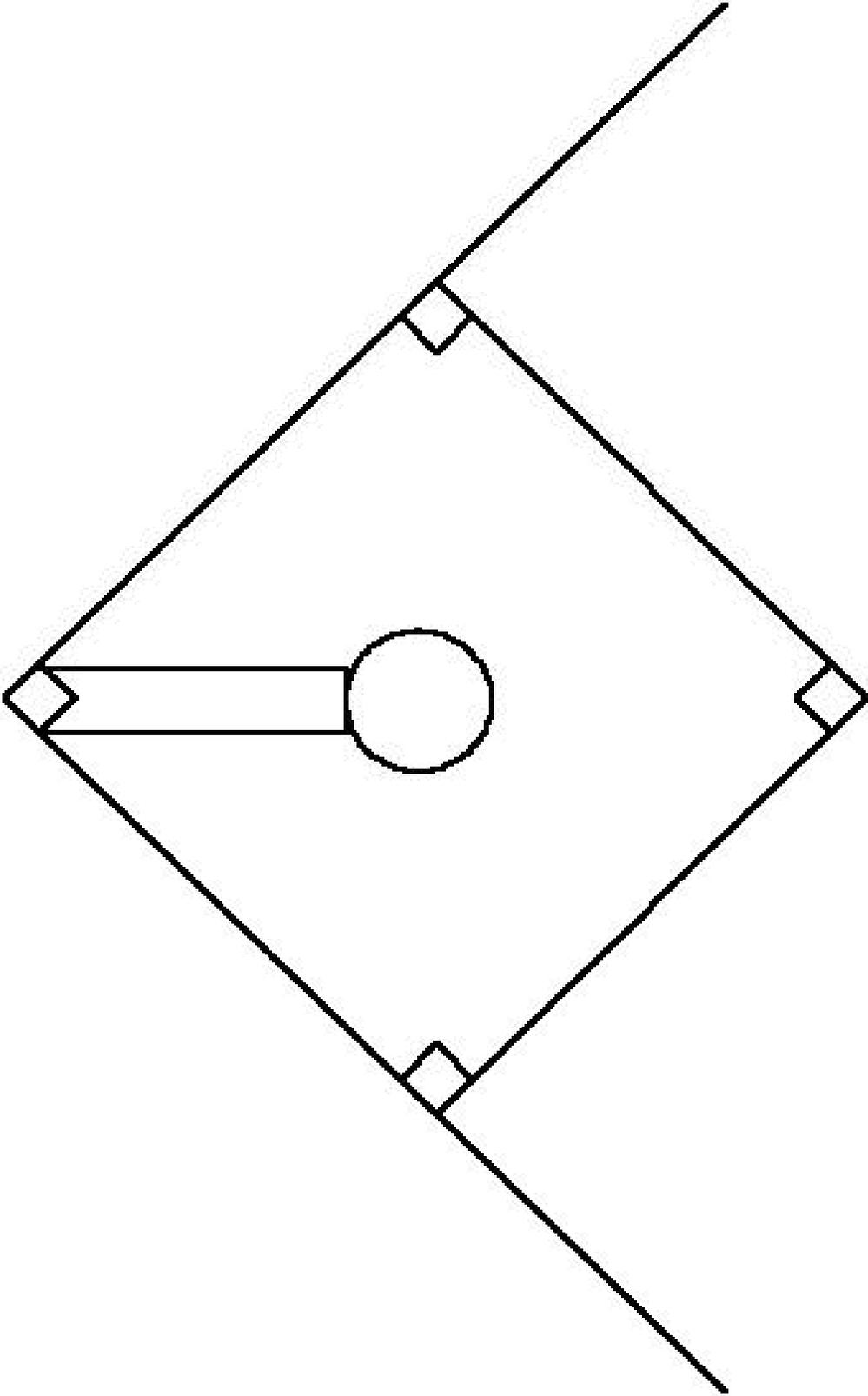
Logo Football

If you don't like baseball, why not try Logo Football. Logo and Morf live near Dallas, Texas, the home of the Dallas Cowboys. So they're real big football fans.

Here's how to play Logo Football.

One team is the offense and one is the defense. The team that is on defense must place eleven small stickers on the screen to stop the offense from getting a touchdown. They can place them anywhere on the screen. Only there must be enough room between the defense stickers to allow the turtle to go through without touching any of the defensive players.

The defense can also draw their defensive players on a piece a clear plastic taped over the screen, using an erasable marker. Use the drawing on the next page if you want. When the defense becomes the offense, all you have to do is wipe off the plastic and redraw the defense wherever they want it.

The offense has to move the turtle from their goal line through the defense to the goal line on the other side of the screen without touching a defense sticker. The offense gets four downs, or four chances to make a touchdown. If they don't, they have to turn the ball over to the defense who then gets their chance to make a touchdown.
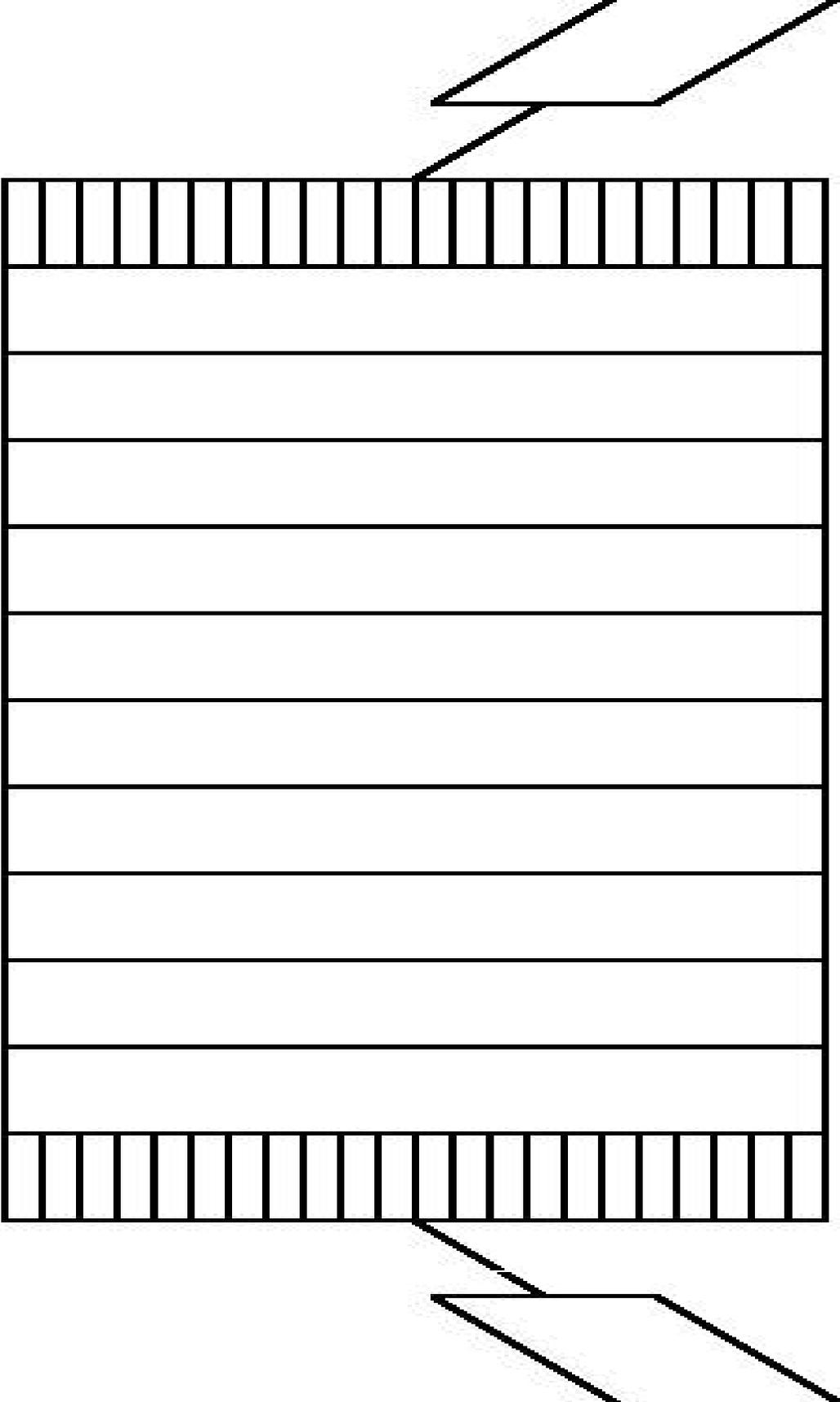
Logo football is a lot of fun, especially if you live in a big football town.

"But what about the extra point?"

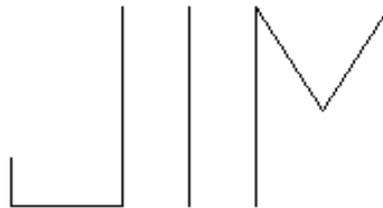"Well, why don't you make up your own rules about extra points after the touchdown."

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Make Up Your Own Adventures

Now...why not make up some adventures of your own?

To give you an idea, why not draw the letters of your name. Take a look.

There's all sorts of things you can dream up, I'll bet. Go on...see what you can do!

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Learning to Say Good-bye

When you want to leave Logo,

Type BYE

A message is displayed asking you if you really want to leave Logo.

Click on OK.

Don't forget to press ENTER after you type a command. That's the only way the turtle will know what to do.

You can also open the File Menu and left-click on Exit at the bottom of the menu. A message is displayed asking you if you really want to leave Logo.

Click on OK.

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Writing Your Own Journal

As you explore Logo, you're going to discover all sorts of things. There are spaces in this book to write things. But it is also a good idea to have your own book where you can write down ideas and other things you want to remember.

That's how Logy did it.

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