THE NATIONAL LOGO EXCHANGE

Summer Fun with Logo

by Mary Bonness

I felt an overwhelming sense of panic when I discovered that my summer computer class had students ranging in age from 6 to 12 years old! My brain circuits seemed to overload, then overflow with doubts, questions, and fears.

How could I possibly challenge the older students while simultaneously leading the younger students at an introductory pace? What type of battle plan would provide for the survival of us all?

Somehow, we made it through, with surprising success. I'd like to share what happened, in hopes that some ideas might be useful to others.

TAKING STOCK

Nine computers were at my disposal with an average class size of twelve. Not bad. The students were from different schools with a variety of experience. I quickly discovered that there was a common ingredient of ENTHUSIASM!

I took advantage of the excellent materials available for helping with Logo teaching. The Turtle's Sourcebook by Kathleen Martin and Donna Bearden was invaluable, as well as Turtle News, the newsletter of the Young Peoples' Logo Association. Harold Abelson's Apple Logo contains numerous graphic examples which proved to be excellent starter challenges for students.

OFF COMPUTER

I was surprised to discover how popular, not to mention how helpful, the off-computer activities were with the students. Using ideas from the NLX and the other references, I tried to start each lesson with something concrete.

The students loved to take turns playing turtle. Blindfolded, they were directed by their classmates through a maze of desks or along some specific path in the room. The only instructions they could follow were turtle commands.

Marking the turtle's trail on the floor with masking tape was a wonderful graphic way for the students to see and walk through the geometric forms.

The younger students designed a turtletown and took turns steering their walnut shell turtles to the candy store, the farm, the swimming pool, and the theater. I mistakenly thought the older students would consider this babyish, but they were eager to drive their turtles around town also.

ON COMPUTER

The students were given a specific assignment at the beginning of class, usually some type of graphic design which would require the use of a particular command or concept. After solving this problem, they were free to work on other projects of their own choosing.

The different age levels seemed to complement each other, and there was a great deal of sharing. At times, the younger students would create a fantastic pattern by "accident," and cause the older students and me to come scrambling. This taught us all something new.

The mixture of off and on computer activities seemed to work well. It was delightful to teach students who groaned with agony when class was finished. (I groaned, too!) Time always seemed to evaporate. Discipline problems were minimal. After all, when the students are practically glued to their monitors, what else is more interesting?

At the end of the summer session, each student worked on a SHOW.OFF program which incorporated all their favorite procedures into one fancy production. I was amazed and delighted to see their creations.

Summer continued

A VITAL ELEMENT

The learning was non-stop and the enthusiasm was contagious. I found that the element of discovery is vital for this spirit. It is important for the teacher to step back and let the students explore, without providing a complete map for them.

This summer experience was very enriching for me. Although I felt like I was diving into icy cold, unknown waters over my head at first, I found the rewards were well worth the risk.

Mary Bonness teches at The Greenhill School in Dallas, TX, and conducts Logo workshops for teachers.

From the Editor

Twenty/Twenty
and More

Well, it had to happen sooner or later. Like so many others before me, I wasn't ready when it came in the mail - the invitation to my 20th college reunion. As the song says, "Yesterday came suddenly." Why do I feel so old?

It couldn't have been twenty years ago that I sat down in front of the computer with all the flashing lights and nixie tubes for my first lesson in BASIC. The console and accompanying components filled most of the room. I had to punch in my instructions on a teletype. But, it worked, and it hooked me.

Some years later, I "graduated" to FORTRAN on an IBM 360 mainframe computer. I remember spending hours on keypunch machines, hours waiting for results, and more hours repunching culprit cards.

Today, I find myself using Logo on an Apple or IBM PC which can run circles around that early beast. Amazing. It is difficult to appreciate fully the technological progress of the last two decades.

I get excited thinking about the next twenty years. What new breakthroughs will make unimaginable things possible? How much smaller and more powerful will computers become? Will we ever find the "best way" to use them in our schools? And, of course, what about Logo?

When I have a quiet moment to myself, I review a favorite fantasy about a time far in the future. A little boy comes up to me and says, "Grandaddy, Grandmomma says you remember when Logo first came out. Would you tell me what it was like back then?"

I smile, take the young lad in my arms, lean back in my chair, and begin...

FD 100!

Conference Notes

On November 29, a seminar entitled "Logo and Mathematics" will be held at Oakland (MI) Schools from 4:30 to 8:15 p.m. The seminar will focus on how to use Logo to teach and enhance mathematics concepts in the classroom. The general session speaker will be Kathleen Martin, author of The Turtle's Sourcebook, co-author of a popular monthly Logo column in The Computing Teacher magazine, and a co-founder of MicroQuests, a newsletter devoted to using Logo to explore mathematical ideas. Following a catered evening meal, two breakout sessions are scheduled, one for upper elementary and middle schools led by Martin, the other for high schools led by Lee Yunker. For more information, write Lynn Lieberman, Oakland Schools, 2100 Pontiac Lake Road, Pontiac, MI 48054, or call (313) 858-1896.

The Educational Computer Consortium of Ohio (ECCO) presents its fourth annual Educational Computer Fair on Friday and Saturday, October 12 and 13, in Cleveland, OH. There are several Logo presentations on the program, including "A Logo Curriculum for Grades K-6" by J. Kent Rawlings, "What Next? Beginning Logo in the Classroom" by Jane Toth and Donna Lanyi (Ed. note: Don't miss their TurtleTips column in each NLX issue.), "Logo: Fulfilling the Potential" by Thomas L. Beck, and "Using Logo in Secondary School Mathematics," by Michael T. Battista. Sharon Burrowes, author of several popular Logo articles (See April 1983 and January 1984 NLX), will speak on "Teacher Training - From Beginner to Programmer." For more information, write ECCO, 1123 SOM Center Road, Mayfield Heights, OH 44124, or call (216) 291-5525.

Tipps for Teachers

by Steve Tipps

Signs of Logo

The TEXTSCREEN in Logo is often over-looked as a place for important learning and exciting projects. One set of projects which highlights the possibilities and usefulness of the TEXTSCREEN is to make moving signs or bulletin boards.

You may want to work through this project skeleton for yourself, but it is not intended as a week of lesson plans. Instead, challenge students with the project of making a bulletin board on the computer like you see in front of banks or in Times Square. With this bigger idea in mind, some children will choose to work toward that goal.

Only PRINT and cursor commands are needed initially. All of the other ideas are intended as responses to problems and questions which almost inevitably arise. Children need variables and a WAIT. Some see a pattern and demand a better way. In this context, recursion makes a lot of sense. If children have already used recursion, then the project is a good extension.

MOVING WORDS

Making an animated sign or marquee or bulletin board is a simple project to start, but leads to variables, recursion, and testing. By moving the cursor around and PRINTing at different places on the screen, moving words are created.

The process is to PRINT a word some-where on the screen, then erase it and draw it again somewhere else. Start with a simple HELLO or ALOHA. (MIT style commands are followed by LCSI ones.)

```
TO HELLO
PRINT1 "HELLO
END

TO HELLO
TYPE "HELLO
END
```

A cursor command puts the word on the tenth line down at the left side.

```
CURSOR 0 10 HELLO
```

```
SETCURSOR [0 10] HELLO
```

The apostrophes in MIT versions hold and print blank spaces. In the LCSI ver-sion, a backslash is used to print the very next character - in this case a space. If you do not have a backslash on the keyboard, try CTRL-Q.

After that bug is caught, you may find that the procedure works too fast for you to read. A delay would be good between the HELLO's. LCSI has a WAIT primitive, but you can write one for the MIT ver-sions. (Hint: REPEAT 100 [])

PATTERN FOR HELLO

Moving HELLO across the screen becomes a very long procedure with the same commands used again and again for each change in position.

After you see how this works, you can move the HELLO across the screen from left to right by printing it in different hori-zontal positions.

```
TO MOVE.HELLO
CURSOR 0 10 HELLO
CURSOR 5 10 HELLO
CURSOR 10 10 HELLO
....
....
END

TO MOVE.HELLO
SETCURSOR [ 0 10 ] HELLO
SETCURSOR [ 5 10 ] HELLO
SETCURSOR [ 10 10 ] HELLO
....
....
END
```

The procedure looks as if it should work, but it doesn't. It just adds more of the same words on the line. You want one HELLO to move across the screen. Some method of erasing the old HELLO is needed. One way is to add CLEARTEXT between each HELLO. Or you could print a blank line with PRINT []. Another way would be to write an ERASE.HELLO procedure which blanks over the five spaces. Either METHOD works, but the latter is a little more precise.

```
TO ERASE.HELLO
PRINT1 ['     ']
END

TO ERASE.HELLO
TYPE [\ \ \ \ \ ]
END
```

Tipps continued

Move the cursor over and print HELLO
Move the cursor back and print blanks
Wait a little
Move the cursor over and print HELLO
Move the cursor back and print blanks
Wait a little

Recognition of this pattern should bring complaints. "Isn't there an easier way? The only thing that is changing is the first cursor number." The project has brought about the need for variables, recursion, and testing.

The variable could be called :SPACE, :HORIZONTAL, :OVER, or some other meaningful placeholder name. The procedure is simplified to three lines and a recursive call.

```
TO MOVE.HELLO2 :OVER
CURSOR :OVER 10 HELLO
REPEAT 100 []
CURSOR :OVER 10 ERASE.HELLO
MOVE.HELLO2 :OVER + 5
END
```

```
TO MOVE.HELLO2 :OVER
SETCURSOR LIST :OVER 10 HELLO
WAIT 10
SETCURSOR LIST :OVER 10 ERASE.HELLO
MOVE.HELLO2 :OVER + 5
END
```

Note that the LIST command is needed for the LCSI version instead of the square brackets. LIST puts the value of :OVER and 10 into a list for SETCURSOR to use.

Each recursive call moves the cursor over 5 to the right. This will cause a problem (and an error message) when the value of :OVER is greater than 39. A STOP test is needed to keep HELLO from running off the edge.

```
IF :OVER + 5 > 39  STOP
```

```
IF :OVER + 5 >  39 [STOP]
```

Try this line in different places in MOVE.HELLO2 to see where it works best. Also, you may need to play with the limits of the test to stop the sign before it falls onto the next line. When you have this all worked out, then you are ready to move HELLO from left to right.

The fun is not over yet. You can also move the sign from right to left. What would you need to change in the recursive line to change direction? The message can

crawl or fly across the screen depending on the change in cursor values and WAIT. You could also make two cursor variables and move HELLO diagonally across the screen. You should also try the moving signs with PRINT instead of PRINT1 or TYPE. What is the difference?

STAR BRIGHT

Putting symbols on the TEXTSCREEN is another kind of display. For instance, an asterisk (*) makes a good star. The STAR procedure prints one star. REPEAT fills the whole screen with stars.

```
TO STAR
PRINT1 "*
END
```

```
REPEAT 1000 [STAR]
```

```
TO STAR
TYPE "*
END
```

```
REPEAT 1000 [STAR]
```

The sky is rarely filled with stars in a such regular way. Instead, they look rather random. You can also make them appear randomly on the screen. Use RANDOM as part of the input to cursor. The limits of the RANDOM are the size of the screen.

```
REPEAT 100 [ CURSOR RANDOM 40
             RANDOM 23 STAR]
```

```
REPEAT 100 [SETCURSOR LIST RANDOM 40
             RANDOM 23 STAR]
```

(Recall that LCSI needs LIST to put square brackets around the two numbers.)
You can control where you put the stars by changing the range on RANDOM. If you want stars only on the top part of the screen, you can set the second input to RANDOM 11. Putting stars in the upper left corner means changing both RANDOM numbers.

Putting stars in the upper right is a little more complicated. If you want the stars to be only in spaces 20 to 39, you have to move over 20 spaces before you choose the random number. Which one of these REPEAT statements do you think will give you the right numbers?

```
REPEAT 15 [PRINT 20 + RANDOM 20]
or
REPEAT 15 [PRINT RANDOM 20 + 20]
```

Tipps continued

Now you know how to "offset" the RANDOM numbers so that you can put stars, or anything, into any region of the TEXTSCREEN.

(Ed. note: This technique also works on the graphics screen. See this month's NLXual Challenge for a similar exercise.)

Stars can also be used to make constellation pictures. A piece of graph paper is handy for planning how to get the stars in the right place. Little stars can be made with periods.

ANNOUNCING

HELLO and STAR are simple models for the many projects students can do on the TEXTSCREEN. Any message can be displayed on the screen: birthday greetings, the lunch menu, special announcements, reminders, club meeting bulletins, etc. The computer becomes a class or school bulletin board. You could buy a software package, but students can write their own procedures personalized for their school or class.

Instead of HELLO, you can have a MESSAGE procedure which can be changed quickly by editing the procedure. You could even have the computer ask for the message.

```
TO SETUP
PRINT [WHAT IS TODAY'S MESSAGE?]
MAKE "MESSAGE REQUEST
END

TO SETUP
PRINT [WHAT IS TODAY'S MESSAGE?]
MAKE "MESSAGE READLIST
END
```

You could change SETUP so that it requests several different messages. Then, you could have several messages on the screen at one time, each one of them doing a different thing. One can move left to right, one right to left, and another flash randomly. Coordinating the messages is an aesthetic challenge.

Simple signs can be as exciting as complicated ones. One of most invigorating interactions I have had was with a group of primary LD students. I showed them a REPEAT statement which flashed my name on the screen 100 times. Within minutes, each of them had their own name PRINTed randomly on the screen. Adapt the messages and

complexity to the interest of your students.

The TEXTSCREEN is a world unto itself with many more projects waiting to be developed.

(Ed. note: See also "Introduction to the Text Screen," by Glen Bull, NLX February 1983.)

Steve Tipps is the West Professor of Education at Midwestern State University in Wichita Falls, TX. He presents Logo workshops for school systems throughout the United States.

NLXionary

A Lectionary of Selected Logo Readings

by Griff Wigley

I bought a copy of the fall 1984 issue of Stuart Brand's latest venture, The Whole Earth Software Review, at the local newsstand. It is another Whole Earth hit. This particular issue contains several Logo articles, and is the source for this month's readings.

"Languages for Thinking about Learning: Eleven Logo's compared," by Jim McCauley

> A tidy summary of most of the currently available versions of Logo, interspersed with interesting comments from other computer folk. Art Kleiner, editor of Whole Earth, describes his personal experience of learning Logo just to edit this section of the review.

>Bob Albrecht has a short insert on why teachers should start with sprites when introducing Logo to kids. (I'd like to see a debate between Bob and Jim Muller on this issue!) Contributing editor Robert Scarola has a piece on "The Trouble with Logo" that describes three limitations to be aware of, particularly for advanced programmers.

>All this is in addition to Jim McCauley's short but concise dissection of the various Logo's, including his clear preferences.

NLXionary continued

"Baby Logo's" by Pamela Sharp, with an introduction by Robert Scarola
> Three Logolike turtle graphics packages are reviewed: Turtle Toyland Jr for the Commodore 64, Cyberlogo Turtle for the Apple, and Turtle Power for the IBM.
>Sharp prefers Cyberlogo and Turtle Power because they are essentially Logo without the word and list processing capabilities, and with some added features to ease the transition to the full language. Toyland, on the other hand, is joystick controlled, and its procedures cannot be edited.

>This whole issue of easy and/or instant Logo's is another area for debate and discussion. What are the longer range benefits and problems if they are used? (Ed. note: See also "The Issue of Instant," by Steve Tipps, NLX December 1983.)

"Using Logo, Making Science," by Robert Scarola
>Scarola, an elementary school teacher, describes his attempts to use Logo to develop a curriculum project for teaching science. Exploring patterns in nature through the geometric patterns and mathematical beauty in Logo's turtle was his focus.
>"I discovered we could move from the broad perspective of galaxies and solar systems to the available world of landscapes, rocks, minerals, plants, animals, and machines, and end close to home with the body, nutrition, reproduction, bones, blood, and cells." Pairing field trips with assignments in Logo, Scarola describes a year long process that makes me want to move to Bolinas, California, to enroll my kids in his school.
>He also adds a plug for instant Logo's, arguing that they get kids into thinking about patterns at an earlier age.
>This article is worth the price of the review alone for all you teachers out there on the front lines.

Griff Wigley is a co-owner of Family Computing, Inc., a facilitator in the Faribault (MN) Public Schools, and a school board member of Prairie Creek Community School.

Turtle Tips

by
Donna Lanyi
and Jane Toth

Now that the school year has started, you are probably looking for activities to motivate and help students learn more about Logo. After working on some pre-computer activities and experimenting with "turtling around," your students might be ready for planning Logo projects and then producing them on the computer. Here are some ideas.

TEACHER HINTS

A roll of plain old masking tape is an aid we have found useful for students planning simple pictures. They tape out their design on the floor, walk through the design, and list the commands needed. This process allows students to visualize the design before working at the computer. It also encourages a group process, because the figure on the floor is public.
If your students have difficulty understanding the degrees used in turning the turtle, try the "paper plate technique." Have students draw a turtle on a small paper plate. Add LT and RT (if appropriate) and selected numbers for the turns. The plate turtle shown here has numbers for turns of 45, 90, 135, and 180.
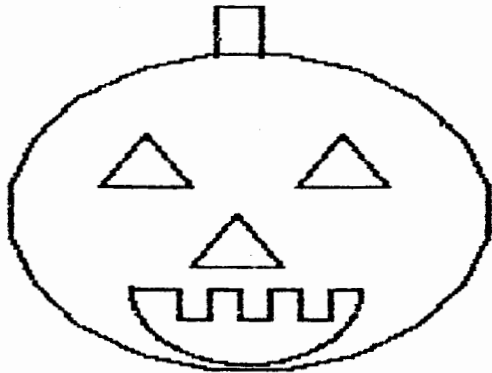

We have successfully used the plate turtle by having students place it on the computer screen aligned with the Logo turtle. Then they match the direction they want to turn with the numbers on the plate. As students master the concept, we add more and more numbers to the plate.
Additional embellishments include decorating the plate, naming the turtle, and the like. (Ed. note: See also "Logo Tips from Punahou," Electronic Learning, April 1983, page 73, for more related ideas.)

TurtleTips continued

PROCEDURE OF THE MONTH

Since it is October, our procedure this month coincides with the Halloween theme. Ask your students to match our Jack-O-Lantern design or create one of their own. Encourage students to draw other designs on the Halloween theme.

If you are interested in a free listing of this procedure, please send us a self addressed stamped envelope.

We invite elementary teachers and students to send their procedures or ideas to be shared. Donna Lanyi and Jane Toth, Beall Avenue School, 716 Beall Avenue, Wooster, OH 44691.

Donna Lanyi and Jane Toth use Logo in their elementary classrooms in the Wooster (OH) City Schools.

Logo Research in Progress

Researchers at the University of Maryland's Center for Young Children are involved in investigating the use of microcomputers with 3, 4, and 5 year old children. A robot turtle, Instant Logo, and Delta Drawing have been used with various activities. A special dimension of the project is parent involvement. Parent workshops, parent volunteers in the project, and sessions with both parent and child provide open communication and exchange of ideas. For more information, contact June Wright, Computer Discovery Project Coordinator, 1229 HRW Benjamin Building, University of Maryland, College Park, MD 20742, or call (301) 454-2341.

Listful Thinking
by
Glen Bull and Paula Cochran

Pick-a-Treat

Witches and pumpkins and monsters, oh my! It will soon be that time again, when students are so busy thinking about ghosts and goblins that getting them to concentrate on school work can be difficult.

We have used Halloween words and images this month in hopes that Logo and list processing will help you take advantage of student interests in ghouls to work on some language arts goals. If you teach secondary students, the underlying activities can be used with them, too, perhaps without the Halloween emphasis.

TEACHING ENGLISH OR TEACHING LOGO

Some teachers have expressed concern that too much of their instructional time goes to teaching Logo and not enough to their content area when they attempt to use Logo activities in class. We suggest that, in many cases, this can be avoided if teachers provide key Logo procedures for accomplishing a particular content-related goal. Although some students may go on to dissect such procedures in a programming class, for example, they need not understand the details for the moment.

Last month, we tried to provide a model of this approach to using Logo in the classroom. We took on the guise of an English teacher to explore some aspects of poetry using such Logo tools as a procedure called PICK (see Listful Thinking, NLX, September 1984.)

This month we continue to wear this mask while suggesting some other ways to make lists and use PICK. As you recall, PICK randomly selects a word from a list. This is what PICK looks like and how you use it:

```
TO PICK :LIST
OUTPUT ITEM 1 + (RANDOM COUNT :LIST) :LIST
END

PRINT PICK [GHOST WITCH CAT SKELETON]
SKELETON
```

Try PICK with your own list of words. If you have trouble, or are using Terrapin Version 1 or Krell Logo for the Apple, check last month's column for hints and translations.

Listful Thinking continued

BORING OR BRILLIANT

One frequently heard complaint from language arts teachers is that children use boring adjectives. Kathy Lascala, an LD teacher we know, calls them "the terrible ten" - nice, okay, good, etc. Halloween is an excellent excuse for talking about more expressive description words. The class might come up with a list such as the following, which we have put into a procedure using PICK.

```
TO ADJECTIVE
OUTPUT PICK [SCARY WILD MYSTERIOUS SPOOKY]
END

PRINT ADJECTIVE
SCARY
```

METAPHORICALLY SPEAKING

With a couple of more lists of Halloween words generated by the students, you could work together on writing some metaphors about Halloween. A metaphor is an implied comparison in which comparative words such as "like" and "as" are not used. The procedure below yields some delightful metaphors:

```
TO METAPHOR.POEM
PRINT SE [HALLOWEEN IS] ADJECTIVE
PRINT SE [HALLOWEEN IS A] NOUN
PRINT PLACE
END

TO NOUN
OP PICK [GHOST GREMLIN MONSTER WITCH]
END

TO PLACE
OP PICK [[IN THE WOODS] [UNDER MY BED] [IN
    THE MOONLIGHT] [IN THE CLOSET]]
END
```

When you call METAPHOR.POEM here's what you might get:

```
METAPHOR.POEM

HALLOWEEN IS SPOOKY
HALLOWEEN IS A GREMLIN
UNDER MY BED
```

or perhaps

```
HALLOWEEN IS MYSTERIOUS
HALLOWEEN IS A WITCH
IN THE MOONLIGHT
```

If this has been a class project, the students could vote on the verses they like best and make copies to illustrate or share with other classes.

BIG, BRIGHT, AND BOO-TIFUL LISTS

Using PICK to choose from lists which follow it within brackets is fine for short lists, or lists you only want to use one way. Many times, however, it would be helpful to have a name for the list we typed. We cannot, for example, ask Logo to print out the list of adjectives we used above, because the list itself has no name.

Besides putting lists into procedures, as in NOUN, ADJECTIVE, and PLACE, you can make Logo lists as follows:

```
MAKE "TREATS [CANDY POPCORN COOKIES]
```

If we want to know what the treats are, we ask for the list or THING associated with the name:

```
PRINT THING "TREATS
CANDY POPCORN COOKIES
```

There is a short-hand way of typing the THING request, which makes use of the colon (or "dots") :

```
PRINT :TREATS
CANDY POPCORN COOKIES
```

Of course, we can PICK a treat:

```
PRINT PICK :TREATS
POPCORN
```

Now we can make a long list of words which we can print or use in several ways. Since we're doing poetry at the moment, this is how such a list could be used to play with alliteration:

```
TO B.WORDS
MAKE "B.LIST [BIG BEASTLY BAD BOOTIFUL]
END

TO ALLITERATION.POEM
PRINT [ON HALLOWEEN THE]
REPEAT 2 [PRINT PICK :B.LIST]
PRINT SE NOUN [WAS]
PRINT PICK :B.LIST
END

B.WORDS
ALLITERATION.POEM
```

Listful Thinking continued

ON HALLOWEEN THE
BIG
BAD
WITCH WAS
BEASTLY

** Note ** When you create a list within a procedure, as in B.WORDS above, you must call the procedure in order to give Logo a chance to MAKE the list. If you change the contents of the list by editing the procedure, don't forget to run the procedure in order to MAKE the list again, with the changes. If this seems confusing, think of a SQUARE procedure. Just writing the procedure doesn't cause the square to be drawn. Calling it does.

We hope that you and your students have fun using Logo to talk about ghosts and goblins, and maybe even about some poetry concepts such as metaphors and alliteration. We also hope that this way of using Logo to implement content-specific activities becomes less mysterious and even more exciting than Halloween!

Glen Bull is a professor in the University of Virginia's School of Education, and teaches Logo courses at both the graduate and undergraduate level. Paula Cochran is a reformed English major who studied linguistics at the University of Cambridge. She is now a speech-language pathologist working with language-disabled children.

前 100   by
                          Hillel
                          Weintraub

In this month's column, I'd like to tell you a little about the growth and direction of Logo in Japan.

In order to understand just how far Logo has come in two years, it is important to see what the state of Logo was in October, 1982. At that time, I was looking for information about Logo. I was directed to Terrapin's Japanese representative, the BYNAS division of the UNY company, a forward-looking company which had decided that Logo had something important to offer Japanese education.

When I visited the BYNAS office and looked around, I discovered that there were no Japanese publications on Logo and there were no Japanese computers running Logo.

However, two key events were in progress: the Japanese translation and publication of Mindstorms was being finalized, and Professor Papert's first visit to Japan was being arranged. These two events set the Japanese Logo world afire.

The present state of Logo in Japan, less than two years later, is this: there are now some 13 different Logo publications in Japanese on the shelves of the BYNAS office; every major computer company in Japan - NEC, Sony, Fujitsu, Sharp, Hitachi, and Epson - all have Logo versions running.

Two of these, Sony and Fujitsu, have bundled Logo with their latest models. At least three companies are actively working to create Logo languages for other computers and other models. There are two Logo-only publications, The Logo Journal, publishjed by UNY Company, and Logosome Z's, published by Geodesic. There is also an active Logo research / study group.

Perhaps the most important development is potential rather than actual as of this date: that is, the bundling of Logo with the MSX computers. These computers, marketed by nearly every computer company in Japan, all have the same operating system and can run virtually the same software. At present, most MSX software (99%) is of the game variety.

The MSX version of Logo has been completed by LCSI, and negotiations are underway to have it bundled with each MSX machine. What this would do to the place of Logo in Japan is mindboggling. Educators and others interested in Logo are considering the educational implications.

In future columns, we'll consider some of these implications, too, as well as some of the people and publications instrumental in Logo's Japanese development. I will also share with you some of the differences between the structure of the educational system in Japan and the USA and how this will affect Logo use here.

Until then, MAE 100!

Hillel Weintraub is a teacher at Doshisha International High School in Kyoyo-fu, Japan, and is the president of the Society for Microcomputing in Life and Education (SMILE).

Teacher to Teacher

Triscuits and Task Cards: Aids for Elementary Grades

Reviewed by Regina Bowden and Anne Cairns Federlein

Crackers come in a variety of shapes and sizes. They serve a variety of people for a variety of reasons. It is comforting to have some on hand at all times. Despite their similarities, preferences revolve around differences. That seems to be the case with many things in life besides crackers. Logo task cards are like that, too.

This review of five sets of Logo task cards is written to help you discriminate. Each classroom has unique needs. Just as crackers in the pantry provide a measure of comfort, task cards alongside the computer can help enrich the user, whether child or adult.

Included are Logo Task Cards, from Computer Skill Builders, Logocards: Activities for Apple Logo and Logocards: Activities for TI Logo, from Scott, Foresman, Exploring Logo: Apple, and Exploring Logo: Commodore, from Sunburst Communications, One Key Logo and Logo, from Lincoln (NE) Public Schools, and Logo Premiers Pas avec la Tortue, from Micro-Ami, Inc.

SIMILARITIES

* Authors agree that task cards are supplementary to the Logo curriculum. They provide ideas for teachers, parents, and students, when new ideas run low. (Haven't we all had one or more of those days?)

* All five sets of cards feature turtle graphics.

* All are arranged by categories, with simple tasks addressed first. Most cards can be used effectively out of order.

* All sets make excellent resources for teachers who need new ideas, lesson planning, and clarification of concepts.

* Authors mention that use by a small group of two or three students is preferred over individual use. There is more language exchange and discussion about the problem when two or three students work together. This leads to a deeper understanding of the principles involved.

DIFFERENCES

Logo Task Cards
Authors: Andy Howard
          Roger Goodberlet

Logo versions supported: Apple Logo, Terrapin Logo, and Krell Logo for the Apple computer; IBM Logo, Dr. Logo, and Waterloo Logo for the IBM PC; Atari Logo

Ten instruction cards give a brief but thorough introduction to the Logo philosophy. A list of skills is included, not to be used as a strict set of objectives, but as a helpful guide to those who must "justify" working with Logo in the classroom. The skills list also helps teachers with little Logo experience to identify new skills learned by the students.

The activity cards give an extended view of the power of Logo, and include math and word and list operations as well as turtle graphics. A response booklet is included which helps the student get into the habit of keeping a journal of experiences for reference. A benefit of owning task cards is the file of creative suggestions for challenging students. This set has some interesting challenges using RANDOM, a honeycomb pattern, and a quilt. These challenges keep that very active student busy and learning!

There is also a set of 60 visual masters available to be used independently or in conjunction with other materials. The cards can be used independently by children ages 9 and up.

Exploring Logo: Apple
Exploring Logo: Commodore
Authors: Karl Zinn
          Gordon Leacock

Logo versions supported: separate decks of cards for Terrapin Logo and Krell Logo, Apple Logo, and Commodore Logo

Of the five sets of cards, this set contains the most technical information. Geared for older students (over 12 years) and adults, there is an activity, exploration, and explanation section on each card. The explanation section also contains a "quick review". Some cards have a "powerful idea" and a "useful technique" area for tips about the concepts covered on the card.

In addition to turtle graphics, there are cards which address words and lists, music, mathematics, and sprites (Commodore version only). There is a quick reference guide to Logo commands and conventions, and a glossary.

Teacher to Teacher continued

The 50 page guidebook contains suggestions for creating the classroom environment, Logo philosophy, and applications. The accompanying student diskette contains valuable sample programs and utilities. In addition to being an aid for learning the Logo language, this set of cards could be used as a quick reference to commands and operations.

Logocards: Activities for Apple Logo
Logocards: Activities for TI Logo
Authors: Elaine Blitman
          Barbara Jamile

Logo versions supported: Apple Logo for the Apple computer, TI Logo for the Texas Instruments 99/4 and 99/4A computers

Each set contains 100 5x8 cards, arranged according to the commands and operations presented. A typical card contains a particular topic, an example to try (individually or in a small group), a question to answer, and more samples for experimentation. Challenge cards mark the end of each group of concepts and reinforce what was learned.

Children as young as 8 years old could work with the cards alone or in groups of two or three. However, the authors suggest that even 6 year olds are capable of using the cards.

The text on the cards is in primary print, easy to read by the young child, with the keys to be used emphasized in darker print. They are brightly color coded and printed on durable heavyweight paper. If a teacher laminates these cards, then the children could use the backs to record their comments in a log.

Teachers and children alike would be comfortable using this tool!

One Key Logo (two sets)
Logo (one set)
Authors: Chuck Friesen
          Kathy Parker
          Jerry Shedlosky

Logo versions supported: Terrapin Logo and Krell Logo for the Apple computer, Commodore Logo for the Commodore 64

These three sets of cards are quite inexpensive and have been classroom tested by 350 teachers in the Lincoln Public Schools in Nebraska. The first set of One Key Logo is meant for use by "non-reading" students. Clear simple drawings lead the child through exploration on the computer using the single key procedures on the accompanying diskette.

Some nice features of this easy to use version include the ability to draw circles of varying sizes for use in creative drawings, to undo, to erase, to name procedures and recall them easily, and, of course, to save drawings.

The second One Key Logo set contains written instructions. Children with minimal reading skills who need some room to stretch on their own could handle these cards. This is the perfect opportunity for a child who may not normally be a star to shine as the leader of a small group involved in Logo activities. Some classrooms use older student helpers. These cards could help them work wtih small groups of younger students.

The Logo set of cards is for older children and adults, and lead them through an introduction to the Logo language. The focus is on exploration followed by creative discovery. Parent helpers would also benefit from practice with these cards!

(And, don't forget, some adults prefer to practice first in private. Providing a quiet room for adult exploration at scheduled times is thoughtful, and would help boost the self confidence of the your adult volunteers.)

Logo Premiers Pas avec la Tortue
Author: Marie De'carie

Logo version supported: French Apple Logo (LCSI) for the Apple computer

Exploring these cards was lots of fun! It has been quite a while since college French, and we cajoled the younger set into coming to our rescue. With the aid of students in a high school French class, we finally got going!

Once again, the emphasis in these cards is on exploration, explanation, and encouragement to play and discover. The major difference is that they are written in French! This brings to mind a strength of the Logo language: the ability for users to define their own commands.

These cards were written to accompany the French version of Logo, available for the Apple from LCSI. With a bit of creativity, however, they could be put to good use with any version of Logo by a French teacher or student. Both elementary and high school students might enjoy using the cards as part of a unit on France. The cards are written for fourth through sixth grades.

Teacher to Teacher continued

IN SUMMARY

As educators concerned wtih the danger of too many drill programs in the classroom and not enough experience with problem solving, we found that the authors of these materials are very sensitive to this situation. The cards focus on presentation, exploration, and discovery learning. Task cards can provide that spark of an idea for creativity to grow.

For a new Logo user, this complex language can be quite overwhelming, if viewed holistically. Task cards allow users to isolate individual concepts and build on them slowly.

There is also a population of adult learners who enjoy the computer and the challenges it provides. Task cards can be a non-threatening way to improve reading and thinking in the privacy of their homes.

Parents who purchased the Logo language and need suggestions on implementation will find task cards very meaningful.

Logo task Cards, available from Computer Skill Builders, 3130 North Dodge Boulevard, PO Box 42050, Tucson, AZ 85773. (602) 323-7500. $14.95 for 60 cards and student booklet. Extra student booklets cost $7.50 for a set of 10. A set of visual masters costs $19.95.

Logocards: Activities for Apple Logo and Logocards: Activities for TI Logo, available from Scott, Foresman Electronic Publishing, 1900 East Lake Avenue, Glenview, IL 60025. Each set contains 100 activity cards and a user's guide for $19.95.

Exploring Logo: Apple and Exploring Logo: Commodore, available from Sunburst Communications, Pleasantville, NY 10570. (914) 769-5030. $49.00 for a set of 26 cards, 62 page guidebook, and a student diskette.

One Key Logo (2 sets) and Logo (1 set), available from Lincoln Public Schools, Educational Technology, 720 South 22nd Street, Box 85889, Lincoln, NE 68502. $5.00 per set of cards, $3.00 per diskette. What a bargain!

Logo Premiers Pas avec la Tortue, available from Micro-Ami, Inc., 16 rue Georges, Ormstown, Quebec J0S 1K0 Canada. $19.95 for a set of 37 cards.

For comments, questions, and concerns on the task cards, please contact Logo Information For Teachers (LIFT) at PO Box 5396, Plymouth, MI 48170.

Avance 100!

Regina Bowden is the Director of Education at Computer Horizons Training Center in Livonia, MI. Anne Cairns Federlein is a professor in the Early Childhood Area, School of Human and Educational Services, Oakland University, Rochester, MI.

Logo Disserts:

Dissertations Dealing with Logo
by Barbara Elias

Can Logo programming facilitate the development of problem solving ability? An investigation of this question was conducted using Logo programming tasks.

Problem solving was defined as the accomplishment of a goal which is not easily attainable. Problem solving requires action or activity in order to reach a desired goal. Programming, an activity analagous to problem solving, was selected for this study because it provides a rich problem solving medium with varied possibilities.

Since the Logo language is relatively easy for children to use, it was selected for use in the study.

A modification of the Polya model was used to relate the essential problem solving / programming tasks.

1. Defining the problem
2. Devising a plan
3. Gathering information
4. Executing the plan
5. Revising the plan
6. Evaluating the results

48 fourth grade children spent a few hours a week for two and one half semesters on Logo tasks. Instruction included concept development of procedure definition, editing, recursion, inputs, conditionals, and variables. When a child could use a concept successfully in similar and diverse cases, mastery was acheived.

Logo Disserts continued

In general, the children showed gains in recursion and communication tasks, but not in problem solving tasks.

Factors which affected concept development included time available, reading level, arithmetic and typing ability, design drawing skill, and ability to attend to the tasks.

An additional result of this study is a set of hypotheses on programming concepts, heuristics, transfer, and attitude. In a real sense, these same hypotheses continue to be of interest to researchers today.

>>>Statz, J. A. (1974). The Development of Computer Programming Concepts and Problem Solving Abilities among Ten Year Olds Learning Logo (Doctoral dissertation, Syracuse University, 1973). Dissertation Abstracts International, 74, 5418-B.

(Ed. note: Each month, Barbara Elias highlights a dissertation or thesis dealing with Logo. She is accepting copies of recent research results for the NLX Dissertation and Thesis Repository. Reports may be mailed to her in care of NLX, PO Box 5341, Charlottesville, VA 22905.)

Barbara Elias is an assistant professor in the Education Department of Virginia State University in Petersburg, VA, and a doctoral candidate at the University of Virginia.

Logo Featured at NC Conference

The North Carolina Educational Microcomputer Conference, held in Winston-Salem, NC, September 20-21, featured four sessions dealing with Logo. Sheila Cory suggested a cautious approach to implementing Logo in the elementary schools, and gave suggestions on curriculum development and program evaluation. Mary Jenkins presented an introduction to Logo to those with no previous experience. Judy LeCroy discussed how to stretch five computers to cover the needs of over 700 students, and how to train Logo teachers. Elaine Bologna shared information on how to integrate Logo effectively into a traditional curriculum, including ideas for individual students, small groups, and the whole class. For additional conference information, contact Jeanette Gann, NC Regional Educational Center, Region 5, PO Box 21899, Greensboro, NC 27420, or call (919) 379-5764.

Q and A

by
Jim McCauley

Q. I'm just starting out with list processing, and I can't sort out all the differences among SENTENCE, LIST, FPUT, and LPUT. They are all used to make lists; why are there so many, and what are they used for?

<[-?-]>

A. These primitives (which I call "list constructors") caused me a lot of befuddlement when I started using them, too. Each of the four has its special properties and applications.

SENTENCE

The list constructor that nearly everyone starts with is SENTENCE. It is very simple; ordinarily, it takes two objects (words or lists) and simply mashes them together into one list.

```
SHOW SENTENCE "A "B
SHOW SENTENCE "A [B]
SHOW SENTENCE [A] "B
SHOW SENTENCE [A] [B]
```

all return [A B] as a result. As you can see, SENTENCE removes the distinction between words and lists when it smashes them together. For certain applications, it is handy to do this. Here's an example:

```
TO GREET :NAME
PRINT SENTENCE "HI, :NAME
END
```

This procedure works properly no matter whether the input is a word or list because SENTENCE "ignores" the first level (the outermost) of brackets in :NAME if :NAME is a list.

```
GREET "DOROTHY
HI, DOROTHY

GREET [WIZARD OF OZZZ]
HI, WIZARD OF OZZZ
```

LIST

LIST, on the other hand, is very particular. It makes a list of its two inputs and carefully preserves the individual nature of each.

Q and A continued

SHOW LIST "A "B gives [A B]
SHOW LIST "A [B] gives [A [B]]
SHOW LIST [A] "B gives [[A] B]
SHOW LIST [A] [B] gives [[A][B]]

SENTENCE and LIST accept more than two inputs if the primitive and its arguments are surrounded by parentheses.

SHOW SENTENCE ("I [AM A][LOGO LIST])
[I AM A LOGO LIST]

In most Logo versions, SENTENCE and LIST accept one argument if both the primitive and its argument are surrounded by parentheses.

SHOW (LIST "FRED) gives [FRED]

This may seem pointless, but sometimes it is handy to be able to turn a single word into a list. For example, if you have defined a series of procedures whose names are letters of the alphabet (such as in Instant Logo),

RUN (LIST READCHAR)

is a handy instruction to use.

THE MAVERICKS

FPUT and LPUT are a breed apart. FPUT (First PUT) takes two arguments: an object (either a word or a list) and a list. It returns a new list composed of the object as the <u>first</u> element of the new list and the second argument as the rest of the new list.

SHOW FPUT "A [B] gives [A B]
SHOW FPUT [A] [B] gives [[A][B]]
SHOW FPUT "A [[B]] gives [A [B]]
SHOW FPUT [A] [[B]] gives [[A][B]]

LPUT (Last PUT) has a similar effect, except that it is used to place a new object at the <u>end</u> of a list.

FPUT and LPUT are used regularly in recursive processing of lists, especially in procedures of the type I call "scanners." These are procedures that recursively decompose lists, then automatically reconstruct them after treating each element. LPUT often puts in an appearance in procedures that reverse words or lists. Here is a typical application of FPUT's properties.

TO ANTI :LIST.IN
IF EMPTYP :LIST.IN [OUTPUT []]
OUTPUT FPUT ANTI.IT FIRST :LIST.IN
ANTI BUTFIRST :LIST.IN
END

TO ANTI.IT :OBJECT
IF WORDP :OBJECT [OUTPUT WORD "ANTI :OBJECT]
OUTPUT FPUT WORD "ANTI FIRST :OBJECT BUTFIRST :OBJECT
END

Try this out in any version of LCSI Logo and see if you can figure out the two different kinds of things that FPUT is doing in each of these procedures. The same code works in MIT Logo if you eliminate the outer brackets in the IF lines. WORD? and EMPTY? primitives are also needed.

A clear understanding of the list constructors is vital to the development of list processing skills. I encourage all readers to experiment with them, using all imaginable combinations of inputs. That's the best way to learn how they work and how they can be used. Good luck!

(Ed. note: If you have questions about Logo programming techniques or the thinking which leads to Logo programming, send them to NLX Q & A, PO Box 5341, Charlottesville, VA 22905. Each month, Jim McCauley answers selected questions in this column.)

Logo Notes

More Logo Notes

Computer Outlet offers DR Logo for $69 and Atari Logo for $79. Computer Outlet, Park Place, Upper Level, 1095 E. Twain, Las Vegas, NV 89109. (800) 634-6766.

Have you been looking for a screen dump you can use within Apple Logo? CALC-U-WARE has such a program available for the Apple Imagewriter printer. Called L.I.P. (for Logo Imagewriter Patch), it prints the contents of the graphics screen directly when the command IMAGE is typed. $19.95 from CALC-U-WARE, 32921 1st Avenue South, Federal Way, WA. (206) 874-2540.

A free catalog describing Logo teaching materials exclusively is yours upon request. Send a postcard to K-12 MicroMedia, Dept. L, 172 Broadway, Woodcliff Lake, NJ 07675. The 12 page catalog includes reference and resource books, textbooks, activity cards, workbooks, and other Logo related materials. Logo versions for the Apple, Atari, Commodore 64 and IBM PC are supported. Items may be ordered on a 30-day on-approval basis.

Krell Software Corp. announces its new improved MIT Logo for the Apple, available October 1, 1984. New features include upper and lower case letters, faster loading, recovery of accidentally deleted files, and improved documentation. The price is $89.95. For more information, contact Krell Software Corp., 1320 Stony Brook Road, Stony Brook, NY 11790, or call (800) 245-7355.

Lloyd Rieber has completed his masters thesis entitled, "The Effect of Logo on Increasing Systematic and Procedural Thinking According to Piaget's Theory of Intellectual Development and on its Ability to Teach Geometry Concepts to Young Children." To obtain a copy, send $4.00 to Lloyd Rieber, PO Box 305, Bluewater, NM 87005.

Are you interested in learning more about Piaget's theory to support your interest in Logo? If so, you may want to pick up a copy of The Piaget Primer: Thinking, Learning, and Teaching, by Ed Labinowicz (Addison Wesley, 1980). His most recent book is Listening to Children: New Beginnings for Teaching, which highlights children's activities as they invent their own computational algorithms, taking control of their learning.

NLXual Challenges
by
Robs Muir

Random Rings and Things

The RANDOM command can be a valuable and unpredictable tool in the Logo environment. Although the RANDOM command is not truly a random primitive, this pseudo-random number generator has a rich potential for Logo experimentation.

PRINT RANDOM :NUMBER will display a random number from 0 up to the THING (associated with) :NUMBER. For example, PRINT RANDOM 10 will print a number from 0 through 9. This construction can also be used with other primitives.

Some examples include REPEAT 100 [PRINT RANDOM 100], FD RANDOM 100, RT RANDOM 180, PRINT ((2 * :PI) * RANDOM 20), OUTPUT (RANDOM 10) + (RANDOM 10), SETH RANDOM 360.

Here is a group of procedures which will draw circles randomly on your graphics screen.

```
TO DRAW.CIRCLE
RPEAT 36 [FD 1 RT 10]
END

TO RANDOM.CIRCLE
; [MIT LOGO VERSION]
PENUP
SETXY (RANDOM 140) (RANDOM 120)
PENDOWN
DRAW.CIRCLE
END
```

For LCSI Logo, use SETPOS LIST (RANDOM 140) (RANDOM 120) in place of the SETXY line in RANDOM.CIRCLE.
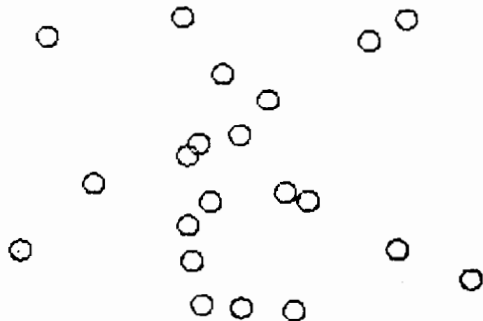
MINOR REPAIRS

A disadvantage with these procedures (as you will discover when you try REPEAT 100 [RANDOM.CIRCLE]) is that the circles are all drawn in the upper right quadrant of the screen. How would you change the RANDOM.CIRCLE procedure so that circles are drawn all over the screen? One suggested method appears at the end of the column.

These procedures could become important parts of interesting games and other activities, if not for the fact that, when used repeatedly, our random number generator sometimes picks the same numbers.

NLXual Challenges continued

HERE COMES THE CURVE BALL

This month's problem is contributed by Jorge Luis Mendivelzua of Argentina. Jorge wished to write a Logo game for his daughter which would generate 20 random "targets" similar to the circles in the procedures above. The difficulty came when he noticed that he sometimes got duplicate circles.

Can you take Jorge's problem and write a procedure that will generate a list of 20 random numbers between 0 and 100 in which there is no duplication? For consistency of output, have your computer print this list on the screen.

If you would like to go even further, use the idea from your random number list to figure out how to draw 20 circles at random locations on the screen so that none of them overlap or intersect.

When you have a working solution (or even a valiant attempt), send your solution, along with a self addressed stamped envelope to:

NLXual Challenges
Attn: Robs Muir
1688 Denver Avenue
Claremont, CA 91711

We will compile the contributed solutions, select the most interesting or unusual ones, and redistribute them to each contributor.

Our "challenge community" already involves NLX readers in six countries, so the contributions are quite diverse. Solutions are available for each problem, but you must contribute your attempted solution (however meager) to receive these "answers".

>By the way, to fix RANDOM.CIRCLE, change the two RANDOM commands to (140 - RANDOM 280) (120 - RANDOM 240).

Robs Muir is a teacher in the Claremont CA Unified School District and Claremont Graduate School. He presents Logo workshops in the southern California area.

Logo Teacher Trainer Network Formed

Logo Information For Teachers (LIFT) is forming a national network of groups and individuals who are involved with Logo teacher training and Logo product development. The group will explore ways to exchange information, offer professional support, and identify and help to solve common problems in teacher training and product development. If you train Logo teachers or create Logo products, this is the group to join. Private business firms as well as school affiliated individuals and organizations are welcome. Write to LIFT, PO Box 5396, Plymouth, MI 48170, or call Regina Bowden at (313) 464-8088.

Editor..Tom Lough