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Word Study Logo Style

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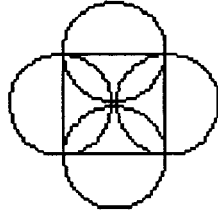
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Try repeating the procedure or vary it in other ways.

Centering circles is another challenge in Logo because of the way the turtle draws. For additional ideas about circle activities, see *Nudges: IBM Logo Projects*.



Arcs - Parts of Circles

Parts of circles not only make interesting designs, but also provide another way to play with circular forms. For example, by repeating a turn of 1 degree 45 times, you can draw 1/8 of a circle (since $360 / 45 = 8$).

```
?REPEAT 45 [FD 1 RT 1]
```

After drawing one arc, type RT 90 and repeat the first commands eight times.

Then try:

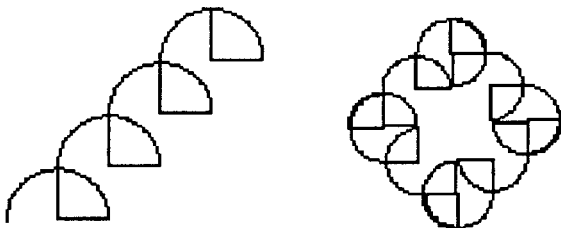
```
?LT 180 REPEAT 45 [FD 1 RT 1]
```

What is the most efficient way to repeat this command series with the version of Logo that you're using?

Vary the commands:

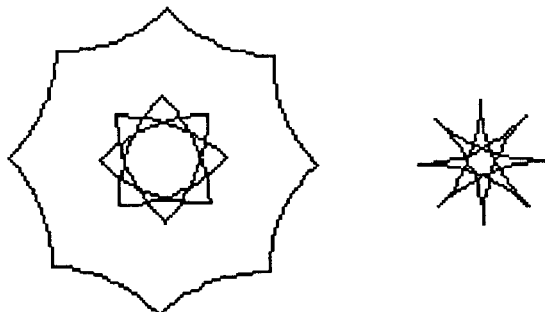
```
?LT 270 REPEAT 45 [FD 1 RT 1] RT 180
```

Make other designs, using part of a circle. Increase the steps, angle, number of repetitions, or by turning the turtle as part of the pattern.



It is only *after* students have thoroughly explored the ideas and concepts above that we introduce the CIRCLES and CIRCLEL or ARCR and ARCL tools found as utilities in most versions of Logo. The students then seem to have a much clearer understanding of what the variable inputs can do in these procedures.

References



Emberley, Ed. *Picture Pie: A Circle Drawing Book*. Boston, Little, Brown and Company, 1984.

Hoban, Tana. *Round & Round & Round*. New York, Greenwillow Books, 1983.

Razzell, Arthur G. and K. G. O. Watts. *Circles and Curves*. New York, Doubleday & Company, Inc., 1968.

Sitomer, Mindel and Harry. *Circles: a Young Math Book*. New York, Thomas Y. Crowell Company, 1971.

Tipps, Steve, Timothy P. Riordan and Glen Bull. *Nudges: IBM Logo Projects*. New York, Holt, Rinehart and Winston, 1984.

Elaine Blitman and Barbara Jamile are the K-2 and 3-4 supervisors at the Punahou School in Honolulu, HI. They have been using Logo with young children since 1982. Their CompuServe number is 76067,211.

Logo LinX

by Judi Harris

Word Study Logo Style

PNEUMONULTRAMICROSCOPICSILICOVOLCANOCONIOSIS (noun).

Yes, it's a word, the longest in Webster's International Unabridged Dictionary (third edition,) as a matter of fact. But what does it mean?

Let's look at it another way:

PNEUMONO ULTRA MICRO SCOP IC SILICO VOLCANO CONI OSIS

Does that help?

--A lung (PNEUMONO) disease (OSIS) caused by inhaling dust (CONI) like (IC) silicon (SILICO) and volcanic (VOLCANO) ash particles so exceedingly (ULTRA) minute (MICRO) as to be seen (SCOP) only with a microscope. (from Ehrlich, I. (1968). *Instant Vocabulary*. New York: Simon & Schuster, p. 522.)

You have just participated in "syllabicalexiscopology," or the study of word meanings by systematic syllabication and syllable analysis. "Pneumonoultramicroscopicsilicovolcanoconiosis" is a real word. "Syllabicalexiscopology" is a "sniglet," or,

--Any word that doesn't appear in the dictionary, but should. (from Hall, R. (1984). *Sniglets*. New York: Macmillan, p. 3.)

The exploration of both types of words with Logo can make vocabulary study more meaningful (if you'll pardon the pun).

Vocabulary Relativity

Face it, facilitators. From the student's perspective, any new word might just as well be a sniglet as an unabridged dictionary entry. Which is more empowering: to memorize lists of words and definitions, or to decode word meanings by the analysis of their component parts? Ida Ehrlich, author of *Instant Vocabulary*, is one teacher who has chosen the second method. She presents 259 "keys," or word components, each accompanied by 15-20 recognizable examples chosen to illustrate each key's meaning. The keys are prefixes, suffixes, and root words. In this way, Ms. Ehrlich indirectly suggests that we empower children with the tools that they need to independently ascertain new word definitions.

Multi-syllabic strangers can be broken down into "mind-sized bytes," and consequently understood.

Does this sound like Logo to you? It did to me.

Here's a good way to integrate the use and study of Logo into upper elementary, middle school, and high school language arts work. First, help the students to identify commonly used prefixes, suffixes, and root words, and research their meanings. Unabridged and collegiate dictionaries often list word parts and their definitions. Popular vocabulary self-study books, such as the one mentioned above, can also serve as resources.

Teach the computer the fruits of the research efforts:

```
?MAKE "PREFIXES [UN RE TRANS IN DI]
```

```
?MAKE "SUFFIXES [IBLE LESS NESS  
FUL MENT]
```

```
?MAKE "ROOTS [PORT AUD VIS MEM  
CRED]
```

These lists may be as long as you'd like them to be. Just be sure that the elements are separated by spaces. The following procedure will cause the computer to generate and output a random combination of three elements (one from each of the three lists) concatenated to form a single sniglet:

```
TO SNIGLET  
  OUTPUT (WORD PICK :PREFIXES PICK :ROOTS  
  PICK :SUFFIXES)  
END
```

It utilizes the PICK tool, presented in Glen Bull and Paula Cochran's wonderful article, "Poetry Sparks" (NLX, September 1984). This procedure, which selects and outputs a random element from any specified list, should also be typed into the computer's memory:

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

To see the sniglet that the computer creates, type:

```
?PRINT SNIGLET
```

To see many different sniglets, type:

```
?REPEAT 20 [PRINT SNIGLET]
```

Capitalize Upon the Process

Rich Hall, sniglet author, has published three volumes of what promises to be a rather unabridged sniglet collection:

Sniglets. (1984)

More Sniglets. (1985)

Unexplained Sniglets of the Universe. (1986)

My students loved leafing through the books as inspiration for on- or off-computer vocabulary / sniglet work. Mr. Hall includes an "Official Sniglets Entry Blank" in each book, and I encouraged the children to use it for their best creations.

A sniglet (or a dictionary entry) is of no value, though (save for a few sniggles), if it is not accompanied by an appropriate definition. These procedures will tell the computer to store the meanings for the sniglets that it generates, or to display the meaning of a sniglet already defined. (If you are using Terrapin Logo, substitute REQUEST in place of READLIST in both the DEFINITION and NOT.DEFINED procedures, and IF THING? :SNIGLET THEN MEANING ELSE NOT.DEFINED in place of IF NAMEP... in the DEFINITION procedure.)

```
TO DEFINITION  
  CLEARTEXT  
  PRINT [PLEASE TYPE THE SNIGLET TO DEFINE.]  
  MAKE "SNIGLET FIRST READLIST  
  IF NAMEP :SNIGLET [MEANING] [NOT.DEFINED]  
  END
```

```
TO MEANING  
  PRINT (SE :SNIGLET "MEANS THING :SNIGLET)  
  END
```

```
TO NOT.DEFINED  
  PRINT [THIS IS A NEW SNIGLET.]  
  PRINT [PLEASE TYPE THE DEFINITION.]  
  MAKE :SNIGLET READLIST  
  END
```

To use the procedures, type

```
?PRINT SNIGLET
```

until the computer prints a sniglet that the user would like to define. Let's say that the computer has generated REPORT-LESS and the user wishes to define this "word." He or she should then type

```
?DEFINITION
```

If a definition has already been supplied for this construction, the computer might print

REPORTLESS MEANS THE STATE OF BEING UN-
PREPARED ON THE DAY THE "BIG REPORT" IS DUE

Otherwise, the computer will print

THIS IS A NEW SNIGLET.
PLEASE TYPE THE DEFINITION.

and wait for the user to type a definition, and press the <RETURN> key.

To preserve the sniglets and definitions generated while students use these procedures, SAVE the workspace after each session with a new file name, and LOAD that new file back into memory the next time that the students work with sniglets. Each sniglet is saved as the name of a global variable, whose value is a list (or, the definition that the student typed in).

The values of the "PREFIXES, "SUFFIXES, and "ROOTS variables can be appended as the students learn new word components and their accompanying meanings.

Sneaky Sniglets

The objective here, is, of course, to help students to increase their vocabulary through the analysis of word parts and synthesis of word component meanings. So, while they are happily generating and defining sniglets, the computer might generate a word like INAUDIBLE from the prefix, suffix, and root word lists above. As long as they are defining the words based upon the component part meanings, they will generate something like this: IN (not) AUD (hear) IBLE (able); "not hearable"

"Well," you might ask, "How will they know that this is a dictionary entry, and not a sniglet?"

Many of the children that I worked with went to the dictionary quite naturally to look up sniglets that "sounded real." Others, less inspired to use the lexicon tool, could be encouraged to do so by challenges, such as,

"How many sniglets does the computer generate before it produces a real word?"

"Is this pattern consistent?"

"How can you change the contents of the memory to guarantee the production of a real word (or a sniglet) every time? Every other time?"

A Final Word

I leave you, now, with a few of my favorite sniglets to inspire further exploration.

AQUALIBRIUM - The point where the stream of drinking fountain water is at its perfect height, thus relieving the drinker from (a) having to suck the nozzle, or (b) squirting himself in the eye.

BOBBLOGESTURE - The classroom activity of not knowing an answer but raising one's hand anyway (after determining a sufficient number of other people have also raised their hands, thus reducing the likelihood of actually being called on).

DISCONFECT - To sterilize the piece of candy you dropped on the floor by blowing on it, somehow assuming this will "remove" all the germs.

FLOPCORN - The unpopped kernels at the bottom of the cooker.

HOZONE - The place where one sock in every laundry load disappears to.

OROSUCTUOUS - Being able to hold a glass to one's face by sheer lung power.

SPIROBITS - The frayed bits of left-behind paper in a spiral notebook.

(from Hall, R. (1984). *Sniglets*. New York: Macmillan.)

Judi Harris was an elementary school computer use facilitator, graduate education instructor, and computer consultant for a number of public and private schools in Pennsylvania. She is now a doctoral student in education at the University of Virginia. Her CompuServe electronic mail address is 75116,1207.

MathWorlds

edited by

A. J. (Sandy) Dawson

In my first MathWorlds column I asserted that "...it is not Logo the language which is of critical importance...the language itself is [but] a vehicle for the advancement of an approach to education which honors the integrity, power and creativity of children." I further argued that "...a Logo culture ...subordinates teaching to learning." I wish to revisit these points now.

I first want to talk about learning environments which support the subordination of teaching to learning. What are the critical features of these situations? Next I wish to elaborate on how working within such environments could impact the teaching and learning of mathematics. Finally, I relate this to the environment in which Logo could be taught and learned.

On Corrections

One of my hobbies is golf, and I am, as are most golfers, constantly on the lookout for ways to improve my game. A number of years ago, I came across Gallwey's book, *The Inner Game of Golf*. [4] I devoured it. I also read his companion book, *The Inner Game of Tennis*. [3] What struck me so forcefully about his books was that he was in fact talking about any teaching and learning setting, not just about