

Logo Pattern Block Fractions

by Judith Harris

Judi wrote an article called Rational (In)fractions describing this microworld in the February, 1989 issue of the Computing Teacher. What follows is a summary of the documentation for her microworld.

This mathematics microworld was designed for sixth grade students that have had some experience with Logo graphics and with fractional numbers. It is one of several "fractions microworlds" that were specifically requested by the teachers, mathematics, and computer specialists in the Albemarle County public schools near Charlottesville, Virginia.

Students in grades 3-8 can use this microworld to explore fractional relationships and all four arithmetic operations. Examples of multiplication and division equations that can be solved and understood using the microworld are incorporated into the code, and similar examples can be appended for addition and subtraction. **It is strongly suggested that students use this microworld simultaneously with a set of pattern blocks.**

1. Load the Logo language into the memory of the computer.
2. Replace the language diskette with the microworld diskette and load the file PBLOCKS. If the microworld does not begin automatically, type START.

3. You should then see the opening screen (see below).

The following procedures will draw fractional pattern blocks: WHOLE, HALF, 3RD, 4TH, 6TH, 12TH

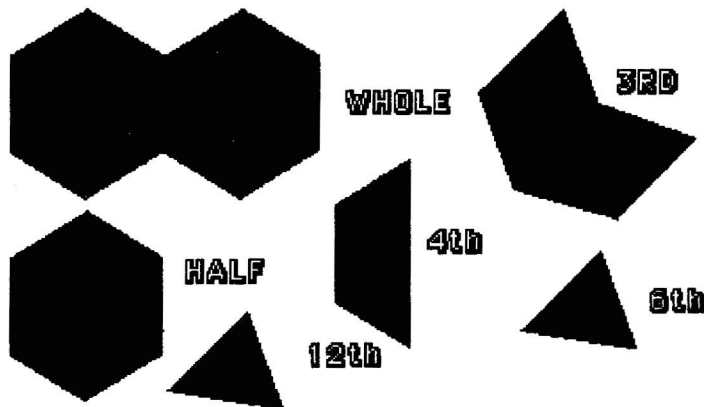
All of these procedures operate from toplevel, but any that cause a picture to be drawn on the screen are also recorded automatically in the computer's memory in the order that they were called, so that users may easily save their work as procedures to execute later. It is therefore necessary to encourage users to use TURN before they enter RT or LT commands, MOVE before they enter FD or BK commands, and PEN? before they enter PU or PD commands.

NAME.IT causes the computer to keep track of and name the commands the user types in. HELP! displays the command list without destroying the picture in progress, and START clears both the screen and the computer's memory of commands entered. M.PROBLEM and D.PROBLEM randomly generate multiplication and division problems, respectively, which can be solved with the microworld and pattern blocks.

Suggestions

1. Encourage users to solve the fractions problems and create the fractions constructions using the pattern blocks first, transferring the block patterns from the

See *Fractions...*page 19



TYPE MOVE FOR FORWARD OR BACK
TYPE TURN FOR RIGHT OR LEFT
TYPE PEN? FOR PENUP OR PENDOWN

TYPE NAME.IT TO SAVE A PICTURE
TYPE HELP! TO SEE THIS COMMAND LIST
TYPE START TO BEGIN AGAIN

TYPE M.PROBLEM FOR A MULTIPLICATION PROBLEM
TYPE D.PROBLEM FOR A DIVISION PROBLEM