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Appendix A

Sample Logo Program

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LOGO PROGRAM - KINDERGARTEN AND FIRST GRADE

1. BODY GEOMETRY - TURTLE WALKS

- * INSTRUCTIONS - one person is turtle (teacher first)
while one or more other children give
instructions

- * directions must be followed without interpreting
them, even if they have bugs.

- * lead children to discover that the most useful
directions involved telling turtle to walk
forward or turn right or left.

a) FORWARD

b) BACK

c) FORWARD "X" (measure by floor tiles or whatever)

d) BACK "X"

- * this command leads back to turtle's starting place.

- * FD X, BK Y does not do this.

e) RIGHT (use hands for this if necessary)

f) LEFT (use hands for this if necessary)

* lead children to turn bodies right and left.

* lead them to see that their feet spin around when
turning

g) RIGHT 90

h) LEFT 90

* as with d) above, this leads back to turtle's starting
place.

* try to get children to try RT 90, LT 90.

* if children inquire as to "why 90?" and "what
happens with other numbers?", let them try
them on the computer.

2. MAZES

* FLOOR MAZES - trace out simple mazes which will
necessitate LT 90, RT 90, FD and BK commands
being used, on large sheets of paper.

* use "toy turtles" and have one child tell another how

to manipulate the turtle through the maze
(human turtles can also be used)

* JOIN THE DOTS - use turtle commands to join the dots
to form a picture.

* this can also be done with pencil and paper.

3. ANGLES OTHER THAN 90.

* CLOCK ACTIVITIES - using a clock face on the floor,
tie twine to child's ankle in centre. Tie other
end of twine to another child's leg, this child
will act as the minute hand of the clock.
Moving from 3 to 12 is RT 90. Try to get children
to see that between 12 and 3, are any numbers
less than 90, and after 3, all numbers are
greater than 90.

* if they are ready for the concept of 90, 180, 270, 360
being "special", let them explore why,
otherwise just let them use random numbers.

4. PROCEDURES.

* SIMPLE TASKS - use simple tasks such as brushing
teeth, making a sandwich, any tasks where
children can realize that a task can be named,
but that within that naming of that task, there

are a number of sub- steps.

- * have children say all the steps in a task, indicating the importance of sequence.

5. REPEAT.

- * play the "repeat" game.

6. PATTERN BLOCKS.

- * children can use blocks, attribute or other symmetrical blocks, to "experiment" with patterns.

COMPUTER INTRODUCTION

1. KEYING

- * using blank screens (no program loaded), let children use letter keys than number keys.
- * let children type their own names or words with which they are familiar.
- * teach children to use space bar.
- * diagram of keyboard on wall would be useful
- * row of number keys could be highlighted
- * spacebar could be highlighted.

1. SPECIAL KEYS

- * return/enter

2. LOGO COMMANDS

- * show turtle
- * forward
- * back
- * right
- * left
- * clearscreen
- * rather than deleting mistakes, let children make mistakes and get error messages, in that way introducing them to the concept of debugging.

3. MAZES.

- * have identical mazes on screen and floor/paper.
- * have one child doing body-turtle, and another child at the terminal. Children take it in turns to give commands, but both children must follow the same set of commands, thus highlighting any bugs.
- * JOIN THE DOTS - as above for mazes.

4. ANGLES.

- * children "experiment" with RT and LT turns, using any numbers.

- * MAZES - children do mazes incorporating angles other than 90.

- * JOIN THE DOTS - as above for mazes.

5. MORE LOGO COMMANDS.

- *as children become ready, more commands should be taught. These would include

- * erase
- * penup
- * pendown.

6. PROCEDURES.

- * as children become ready, procedures can be built up.

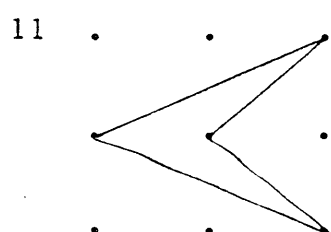
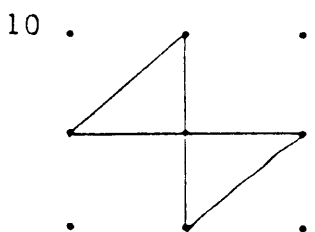
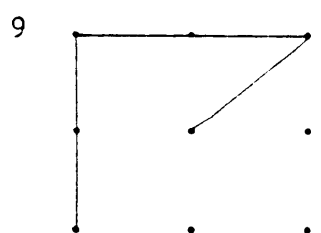
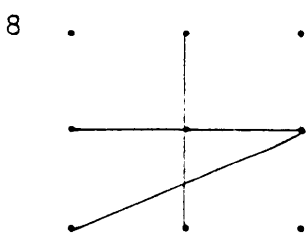
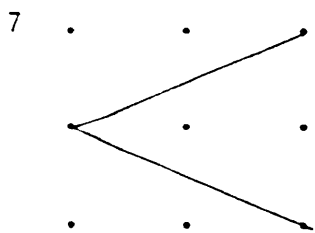
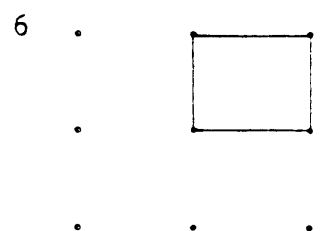
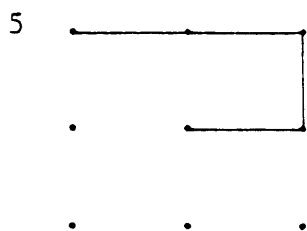
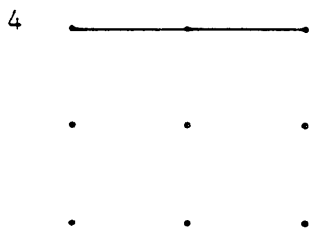
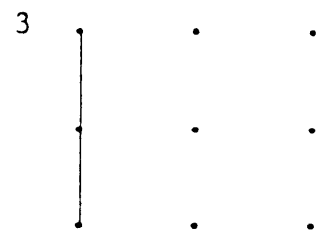
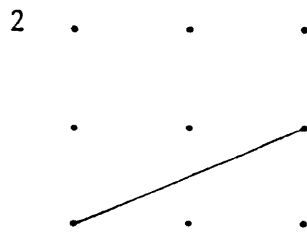
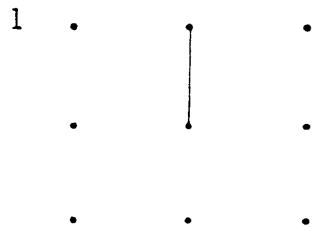
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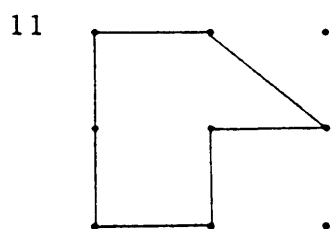
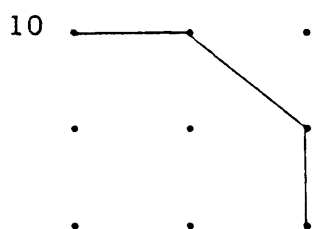
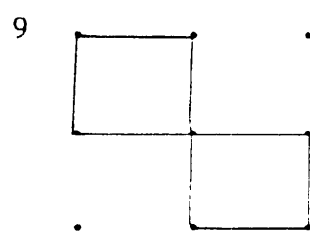
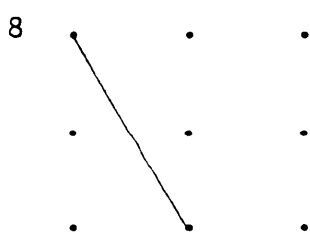
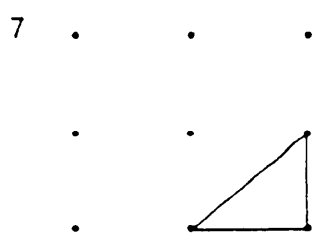
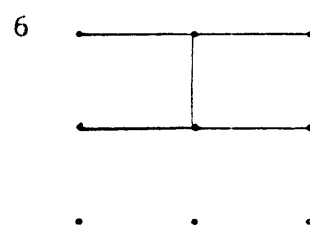
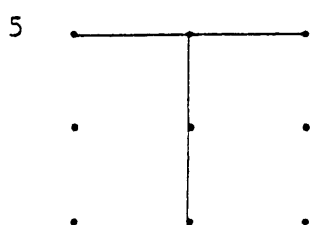
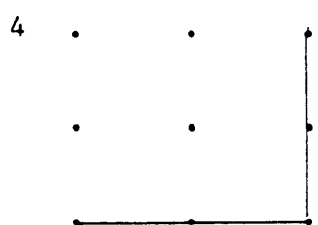
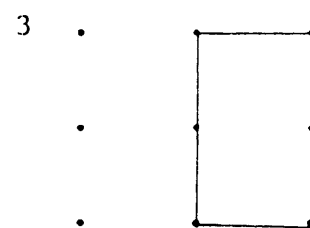
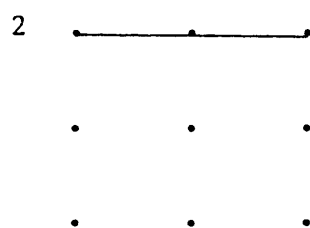
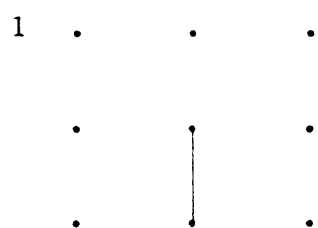
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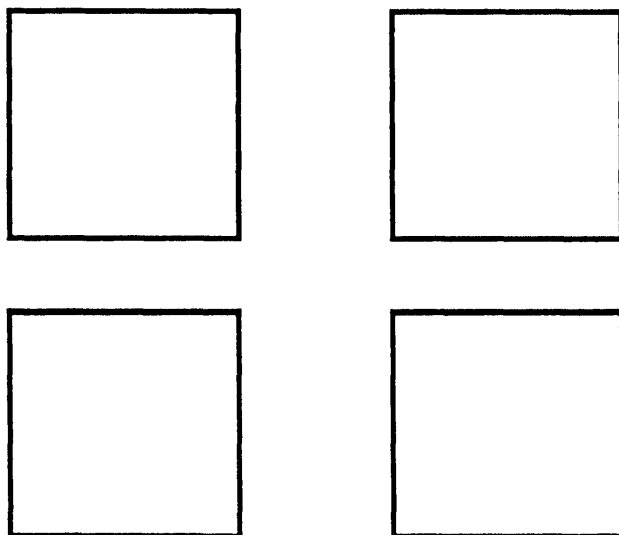
END

Appendix B

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Matrix Copy Displays

Matrix Memory Displays

Colour Tap: Reponse Display

R, B, Y, G ?

Tone Sequences

Sequences of long and short tones were presented in blocks. A child needed to perform one correct sequence within a block to be moved on to the next block.

Block 1

- 1) short short
- 2) long short
- 3) short long

Block 2

- 4) short long long
- 5) long short long
- 6) long long short
- 7) short short long

Block 3

- 8) long short long short
- 9) short short short long
- 10) long short short long

Block 4

- 11) short long short long short
- 12) long long short short long

Sequences of Eye Flashes: Face Task

The left eye on the face flashed orange whilst the right eye flashed white. Each flash lasted 1 second with a 1.5 second pause during which both eyes were blank, giving the child time to press the space bar. The sequence took 4 mins 36 seconds to complete.

The following sequence of 111 flashes was used:

O blank W blank W blank O blank O blank W blank O blank
 O blank O blank W blank O blank O blank W blank O blank
 O blank O blank W blank W blank W blank O blank O blank
 O blank O blank W blank O blank W blank W blank O blank
 O blank W blank O blank O blank O blank W blank W blank
 O blank W blank W blank O blank W blank W blank W blank
 W blank O blank W blank O blank O blank W blank O blank
 O blank W blank W blank O blank O blank O blank O blank
 O blank W blank W blank O blank W blank O blank O blank
 O blank W blank W blank O blank W blank O blank O blank
 W blank O blank W blank W blank W blank W blank W blank
 O blank W blank O blank O blank W blank O blank W blank
 O blank W blank W blank W blank O blank W blank O blank
 O blank O blank O blank O blank W blank W blank O blank
 O blank W blank W blank W blank O blank O blank O blank
 O blank O blank O blank W blank W blank W blank

Sequence of Delays: House Task

The child's task was to respond by pressing a key as soon as the house door was opened. The child's response sounded a bell and closed the door. The length of time before the door opened was varied systematically with 5 duration times repeated to make 30 trials.

The sequence of delays was:

4 seconds, 10 seconds, 13 seconds, 1 second, 7 seconds,
13 seconds, 10 seconds, 1 second, 7 seconds, 4 seconds,
4 seconds, 10 seconds, 13 seconds, 1 second, 7 seconds,
13 seconds, 10 seconds, 1 second, 7 seconds, 4 seconds,
4 seconds, 10 seconds, 13 seconds, 1 second, 7 seconds,
13 seconds, 10 seconds, 1 second, 7 seconds, 4 seconds,
4 seconds, 10 seconds, 13 seconds, 1 second, 7 seconds,