



Basic Commands

Movement

FORWARD fd or FD fd	Moves the turtle forward by <code>fd</code> units.
BACK bk or BK bk bk	Moves the turtle backward by <code>bk</code> units.
RIGHT rt or RT rt rt	Rotates the turtle clockwise by <code>rt</code> degrees.
LEFT lt or LT lt lt	Rotates the turtle counter-clockwise by <code>lt</code> degrees.
PENUP or PU	Lifts the pen, so the turtle moves without drawing.
PENDOWN or PD	Lowest the pen, so the turtle draws as it moves.
HOME	Returns the turtle to the center of the screen, pointing upwards.
CLEARSCREE N or CS	Clears the drawing area.

Pen Control

SETPENCOLOR color or SETPC color	Sets the pen color. <code>color</code> can be a number or a color name (e.g., <code>RED</code> , <code>BLUE</code>).
SETPENSIZE size	Sets the pen size to <code>size</code> . Example: <code>SETPENSIZE [5 5]</code>
FILL	Fills a closed shape with the current pen color.

Turtle Visibility

SHOWTURTLE or ST	Makes the turtle visible.
HIDETURTLE or HT	Hides the turtle.

Control Structures

Repetition

REPEAT count [commands]	Repeats the specified <code>commands</code> <code>count</code> times.
Example:	
	<code>REPEAT 4 [FORWARD 50 RIGHT 90]</code>
	Draws a square.

Conditionals

IF condition [commands]	Executes the <code>commands</code> only if the <code>condition</code> is true.
Example:	
	<code>IF :x > 10 [FORWARD 50]</code>
IFELSE condition [commands_true] [commands_false]	Executes <code>commands_true</code> if the <code>condition</code> is true, otherwise executes <code>commands_false</code> .
Example:	
	<code>IFELSE :x > 10 [FORWARD 50] [BACK 50]</code>

Variable Assignment

MAKE "variable value	Assigns <code>value</code> to the variable named <code>variable</code> .
Example:	
	<code>MAKE "size 50 FORWARD :size</code>
THING "variable	Retrieves the value of a variable.
Example:	
	<code>SHOW THING "size</code>

Procedures

Defining Procedures

Use <code>TO procedure_name</code> to start a procedure definition and <code>END</code> to finish it.
<code>TO square :size</code>
<code>REPEAT 4 [FORWARD :size RIGHT 90]</code>
<code>END</code>

Calling Procedures

Call a procedure by simply typing its name followed by any required arguments.
<code>square 50</code>

Example Procedure with Parameters

<code>TO polygon :sides :size</code>
<code>REPEAT :sides [FORWARD :size RIGHT 360/:sides]</code>
<code>END</code>
<code>polygon 6 30 ; Draws a hexagon with sides of length 30</code>

Math and Logic

Arithmetic Operators

+	Addition
-	Subtraction
*	Multiplication
÷	Division
%	Modulo (remainder)

Comparison Operators

>	Greater than
<	Less than
=	Equal to

Random Numbers

RANDOM

limit

Generates a random integer between 0 and `limit - 1`.

Example:

FORWARD RANDOM 100