Turtle academy: coding and debugging

Turtle Motion

forward X , fd X Moves the turtle x points

back X , bk X The turtle backs x points

left X , lt X Rotate the turtle left x degrees

right X , rt X Rotate the turtle right x degrees

home Moves the turtle to center, pointing upwards

setx NUM_x Move turtle to the specified X location

sety NUM_y Move turtle to the specified Y location

setxy NUM_X NUM_Y , set pos [NUM_X NUM_Y] Move turtle to the specified location

setheading , seth Rotate the turtle to the specified heading

arc ANGLE RADIUS Will create an arc distance RADIUS covering ANGLE angle

ellipse WIDTH HEIGHT Will create an ellipse with Width and height

Turtle Motion Queries

pos Outputs the current turtle position as [x y], x or y respectively

Turtle and Window Control

showturtle , st Show the turtle

hideturtle , ht Hide the turtle

clearscreen , cs Will clear the screen and return the turtle home

fill Does a paint bucket flood fill at the turtle's position

filled fillcolor [statements ...] Execute statements without drawing but keeping track of turtle movements. When complete, fill the region traced by the turtle with fillcolor and outline the region with the current pen style

Pen and Background Control

penup , pu Turtle stops leaving a trail

pendown , pd The turtle will leave a trail

setcolor X , setpencolor X Will set the turtle color accroding to the following table

0: black   1: blue 2: lime 3: cyan 4: red 5: magenta 6: yellow 7: white 8: brown 9: tan 10: green 11: aquamarine 12: salmon   13: purple 14: orange 15: grey

setwidth X , setpensize X Will set the pen width to X

Control Structures

repeat X [statements ...] Repeat statements X times
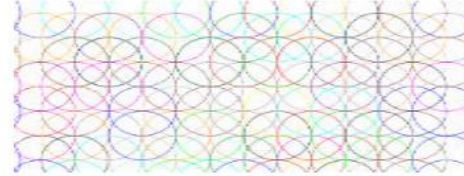
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```
to sd
  setpencolor 'brown
  repeat 900 [
    forward 365
    right 743
  ]
end
sd
```

```
setwidth 10 setcolor 'red
right 18 forward 50
repeat 5 [
  right 144
  forward 50
  left 72
  forward 50
]
```

```
for [i -300 300 50] [
  penup
  setxy :i 0
  pendown
  repeat 8 [
    penup
    setcolor random 16
    forward 50
    pendown
    arc 360 50
  ]
]
```

Activate Windows
Go to Settings to activate V

Key Vocabulary
Understand these keywords

Turtle academy – software to help teach programming principles.

Coding - tells a machine which actions to perform and how to complete tasks.

Debugging - the process of identifying and removing errors from computer hardware or software.

LOGO language - a system for writing computer programs. There are many other types of programming languages that can be used (e.g. html for websites).

Algorithm - a process or set of rules to be followed by a computer.

Software – the programs, coding and other operating information used by a computer.

Hardware - the machines, wiring, and other physical components of a computer or other electronic system.

Learning objectives
Combine all your learning

On Turtle Academy, create amazing shapes using the LOGO language.

On Turtle academy, debug algorithms written using LOGO language