Python Turtle Graphics - Quick Reference

Setup

python

```
import turtle
t = turtle.Turtle()
screen = turtle.Screen()
```

Movement

Command	Description
`t.forward(distance)`	Move forward
`t.backward(distance)`	Move backward
`t.right(angle)`	Turn right (degrees)
`t.left(angle)`	Turn left (degrees)
`t.goto(x, y)`	Move to coordinates
`t.setx(x)`	Set x position
`t.sety(y)`	Set y position
`t.setheading(angle)`	Set direction (0=east)
`t.home()`	Go to origin (0,0)

Drawing

Command	Description
`t.circle(radius)`	Draw circle
`t.dot(size)`	Draw filled dot
`t.pendown()`	Start drawing
`t.penup()`	Stop drawing
`t.pensize(width)`	Set line width
`t.pencolor(color)`	Set pen color

Colors & Fill

Command	Description
`t.color(color)`	Set pen & fill color
`t.pencolor(color)`	Set pen color only
`t.fillcolor(color)`	Set fill color
`t.begin_fill()`	Start filling
`t.end_fill()`	Finish filling

Appearance

Command	Description
`t.shape(name)`	"arrow", "turtle", "circle", "square"
`t.hideturtle()`	Hide turtle
`t.showturtle()`	Show turtle
`t.speed(speed)`	1-10 or 0 (instant)

Screen Control

Command	Description
`screen.bgcolor(color)`	Background color
`screen.title(text)`	Window title
`screen.setup(width, height)`	Window size
`turtle.done()`	Keep window open

Clear/Reset

Command	Description
`t.clear()`	Clear drawings
`t.reset()`	Clear & reset turtle
`screen.clear()`	Clear everything

Common Colors

red, blue, green, yellow, orange, purple, pink, brown, black, white, gray, gold, cyan, magenta

Quick Start Example

python

```
import turtle

t = turtle.Turtle()
t.shape("turtle")
t.color("green")

# Draw a square
for _ in range(4):
    t.forward(100)
    t.right(90)

turtle.done()
```

""" PYTHON TURTLE BASICS - Interactive Graphics Tutorial Run sections individually to see each concept """

```
import turtle
```

```
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PYTHON TURTLE BASICS - Interactive Graphics Tutorial
Run sections individually to see each concept
"""

import turtle

# ============================================
# BASIC SETUP
# ============================================

# Create a turtle object
t = turtle.Turtle()

# Set turtle speed (1=slowest, 10=fast, 0=instant)
t.speed(2)

# ============================================
# MOVEMENT COMMANDS
# ============================================

# Move forward/backward
t.forward(100)    # Move 100 pixels forward
t.backward(50)    # Move 50 pixels back

# Turn left/right (in degrees)
t.left(90)        # Turn 90 degrees left
t.right(45)       # Turn 45 degrees right

# Go to specific coordinates
t.goto(0, 0)      # Go to origin
t.goto(100, 100)  # Go to x=100, y=100

# Set heading (direction in degrees: 0=east, 90=north)
t.setheading(0)   # Face east

# ============================================
# DRAWING SHAPES
# ============================================

# Square
def draw_square(size):
    for i in range(4):
        t.forward(size)
        t.right(90)

# Circle
t.circle(50)      # Radius = 50 pixels

# Dot
```

```
t.dot(20)         # Draw a dot with diameter 20

# ==========================================
# PEN CONTROL
# ==========================================

# Pen up/down (controls if turtle draws while moving)
t.penup()         # Stop drawing
t.goto(50, 50)    # Move without drawing
t.pendown()       # Start drawing again

# Pen color and size
t.pencolor("red")
t.pensize(3)

# Fill color
t.fillcolor("yellow")
t.begin_fill()
t.circle(30)
t.end_fill()

# ==========================================
# SCREEN CONTROL
# ==========================================

screen = turtle.Screen()
screen.bgcolor("lightblue")  # Background color
screen.title("Turtle Graphics") # Window title

# ==========================================
# TURTLE APPEARANCE
# ==========================================

t.shape("turtle")  # Options: "arrow", "turtle", "circle", "square", "triangle",
"classic"
t.color("green")   # Both pen and fill color

# ==========================================
# UTILITY COMMANDS
# ==========================================

t.clear()          # Clear drawings (keep turtle)
t.reset()          # Clear and reset turtle position
t.hideturtle()     # Hide the turtle
t.showturtle()     # Show the turtle

# ==========================================
# EXAMPLE 1: COLORFUL SQUARE SPIRAL
# ==========================================

def square_spiral():
```

```
    colors = ["red", "purple", "blue", "green", "orange", "yellow"]
    t.speed(0)
    t.pensize(2)

    for i in range(180):
        t.pencolor(colors[i % 6])
        t.forward(i * 2)
        t.right(91)

# ============================================
# EXAMPLE 2: STAR
# ============================================

def draw_star(size):
    t.pencolor("gold")
    t.fillcolor("yellow")
    t.begin_fill()

    for i in range(5):
        t.forward(size)
        t.right(144)

    t.end_fill()

# ============================================
# EXAMPLE 3: HEXAGON PATTERN
# ============================================

def hexagon_pattern():
    colors = ["red", "yellow", "blue", "green", "purple", "orange"]
    t.speed(0)

    for i in range(36):
        t.pencolor(colors[i % 6])
        t.circle(100)
        t.left(10)

# ============================================
# RUN EXAMPLES
# ============================================

# Clear screen and reset
t.reset()
t.speed(0)

# Uncomment to run:
# square_spiral()
# draw_star(100)
# hexagon_pattern()

# Simple starter: Draw a house
```

```
def draw_house():
    t.clear()
    t.penup()
    t.goto(-50, -50)
    t.pendown()
    t.speed(3)

    # House base
    t.fillcolor("lightcoral")
    t.begin_fill()
    for _ in range(4):
        t.forward(100)
        t.left(90)
    t.end_fill()

    # Roof
    t.fillcolor("brown")
    t.begin_fill()
    t.goto(-70, 50)
    t.goto(0, 100)
    t.goto(70, 50)
    t.goto(50, 50)
    t.end_fill()

    # Door
    t.penup()
    t.goto(-10, -50)
    t.pendown()
    t.fillcolor("saddlebrown")
    t.begin_fill()
    t.setheading(90)
    for _ in range(2):
        t.forward(30)
        t.right(90)
        t.forward(20)
        t.right(90)
    t.end_fill()

    t.hideturtle()

# Run the house example
draw_house()

# Keep window open
turtle.done()
```