Turtle reference

The following is a summary of turtle instructions, taken from the Python reference docs.

Import

```
from turtle import *
```

The turtle will begin in the screen center, facing right. Positive angles rotate counter-clockwise

Command	Example	Description
`home()`	`home()`	return to the starting point and heading
`right( angle-in-degrees )`	`right(45)`	Rotate clockwise the given number of degrees
`left( angle-in-degrees )`	`left(45)`	Rotate counter-clockwise the given number of degrees
`goto( x-coord, y-coord )`	`goto(-50, 50)`	Jump to new x,y coordinates on screen
`setx( x-coord )`	`setx(100)`	Jump only the x coordinate to new position
`sety( x-coord )`	`sety(100)`	Jump only the y coordinate to new position
`setheading( new-angle-in-degrees )`	`setheading(90)`	Point in new direction where 0 == facing right. Positive numbers turn counter-clockwise
`forward( distance )`	`forward(100)`	Move forward given distance of pixels
`backward( distance )`	`backward(100)`	Move backward given distance of pixels
`circle( radius )`	`circle(50)`	Draw a circle with radius 50 pixels
`circle( radius, arc-size-in-degrees )`	`circle(50, 180)`	Draw part of a circle, determined by number of degrees given
`dot( radius )`	`dot(50)`	Draw a filled circle(dot) of given size
`hideturtle()`	`hideturtle()`	Will still draw but hide the little animated turtle shape. Will speed up complex drawings
`showturtle()`	`showturtle()`	Show the turtle when drawing

Pen control

Command	Example	Description
`pendown()`	`pendown()`	Draw including whenever moving, jumping location
`penup()`	`penup()`	Stop drawing when moving
`pensize( width )`	`pensize(1)`	Thickness to draw lines
`isdown()`	`isdown()`	Returns True or False based on if the pen is down

Get turtle information

Command	Example	Description
`position()`	`x,y = position()`	Returns an (x,y) tuple of the current location
`xcor()`	`x = xcor()`	Get the current x-coordinate location
`ycor()`	`y = ycor()`	Get the current y-coordinate location
`heading()`	`direction = heading()`	Get the current facing direction in degrees

Colors

Command	Example	Description
`pencolor( color )`	`pencolor( "yellow")`	Change the pen color
`fillcolor( color )`	`fillcolor( "lime")`	Change the fill color - see begin_fill() and end_fill()!
`begin_fill()`	`begin_fill()`	Tells Python you are starting a shape you want to be filled in when complete
`end_fill()`	`end_fill()`	Tells Python you have finished the shape and to fill it in
`bgcolor( color )`	`bgcolor( "sky blue")`	Change the background color
`bgpic( picture_file )`	`bgpic( "background.gif")`	Set a background picture. Must be GIF format
`bgpic( "nopic" )`	`bgpic( "nopic")`	Removes the background picture

Note: colors can be any of the following:

- A named color, see the list of colour names at https://trinket.io/docs/colors

- A color code in the in form of "#rrggbb", use the google picker at https://www.google.com/search?q=color+picker

- A turple of (red, green, blue) values from 0 to 255 each

Screen settings

Command	Example	Description
`screensize( width, height )`	`screensize( 640,480 )`	Set width and height of turtle screen
`title( name )`	`title( "My amazing project" )`	Set title name of turtle screen
`reset()`	`reset()`	Clear screen, re-center turtle, reset heading to right
`clear()`	`clear()`	Clear screen without recentering turtle or resetting heading
`window_width()`	`w = window_width()`	Get screen width
`window_height()`	`h = window_height()`	Get screen height
`isvisible()`	`vis = isvisible()`	Is the turtle visible?
`speed( new-speed )`	`speed(10)`	Set drawing speed between 1 and 10. Normally starts at 6.
`bye()`	`bye()`	Close turtle
`exitonclick()`	`exitonclick()`	Tells Turtle to quit if the exit icon of the screen is clicked

Events

Command	Example	Description
`onscreenclick( function )`	`onscreenclick( click )`	execute function when screen clicked. callback must take two parameters for x,y coordinates of the click
`onrelease( function )`	`onrelease( click )`	execute function when mouse click let go. callback must take two parameters for x,y coordinates of the click

Command	Example	Description
`onkeypress( function, key )`	`onkeypress( pressed, "Up" )`	execute function when nominated key is pressed. callback must take two parameters for x,y coordinates of the click
`ontimer( function, time-in-ms )`	`ontimer( ticktock, 1000 )`	execute function once after given number milli-seconds
`mainloop()`	`mainloop()`	Start the main event handling loop to run your game

Write text to screen

Command	Example	Description
`write( text )`	`write( "Hello there")`	Write text to screen where ever the turtle is
`write( text, font=(fontname,size,weighting)`	`write( "Hello there", font=("Arial",10,"normal"))`	Write text to screen of specified font

Input popup prompts

Command	Example	Description
`textinput("title", "prompt")`	`name = textinput("Name", "What is your name?"`	Popup box for text information
`numinput("title", "prompt")`	`num = numinput("Enter a number", "Enter a number between 0 and 100")`	Popup box to enter a number