

# Pencil Code Reference

## Movement

fd 50 forward 50 pixels  
bk 10 backward 10 pixels  
rt 90 turn right 90 degrees  
lt 120 turn left 120 degrees  
home() go to the page center  
slide x, y slide right x and forward y  
moveto x, y go to x, y relative to home  
turnto 45 set direction to 45 (NE)  
turnto obj point toward obj  
speed 30 do 30 moves per second

## Appearance

ht() hide the turtle  
st() show the turtle  
scale 8 do everything 8x bigger  
wear yellow wear a yellow shell  
fadeOut() fade and hide the turtle  
remove() totally remove the turtle

## Output

p = write 'hi' adds HTML to the page  
p.html 'bye' changes old text  
button 'go', adds a button with  
-> fd 10 an action  
read (n) -> adds a text input with  
write n\*n an action  
t = table 3,5 adds a 3x5 <table>  
t.cell(0, 0). selects the first cell of the  
text 'aloha' table and sets its text

## Other Objects

\$(window) the visible window  
\$('p').eq(0) the first <p> element  
\$('#zed') the element with id="zed"

## Drawing

pen blue draw in blue  
pen red, 9 9 pixel wide red pen  
pen null use no color  
pen off pause use of the pen  
pen on use the pen again  
label 'X' draw the letter X  
dot green draw a green dot  
dot gold, 30 30 pixel gold circle  
pen path trace an invisible path  
fill cyan fill traced path in cyan

## Properties

turtle name of the main turtle  
getxy() [x, y] position relative to home  
direction() direction of turtle  
hidden() if the turtle is hidden  
touches(obj) if the turtle touches obj  
inside(window) if enclosed in the window

## Sets

g = hatch 20 hatch 20 new turtles  
g = \$('img') select all <img> as a set  
g.plan (j) -> direct the jth turtle to go  
@fd j \* 10 forward by 10j pixels

## Other Functions

see obj inspect the value of obj  
rt 90, 50 do a 90 degree arc of radius 50  
speed 8 do 8 moves per second  
tick 5, -> fd 10 go 5 times per second  
click -> fd 10 go when clicked  
random [3,5,7] return 3, 5, or 7  
random 100 random [0..99]  
play 'ceg' play musical notes

## Colors

white	gainsboro	silver	darkgray	gray	dimgray	black
whitesmoke	lightgray	lightcoral	rosybrown	indianred	red	maroon
snow	mistyrose	salmon	orangered	chocolate	brown	darkred
seashell	peachpuff	tomato	darkorange	peru	firebrick	olive
linen	bisque	darksalmon	orange	goldenrod	sienna	darkolivegreen
oldlace	antiquewhite	coral	gold	limegreen	saddlebrown	darkgreen
floralwhite	navajowhite	lightsalmon	darkkhaki	lime	darkgoldenrod	green
cornsilk	blanchedalmond	sandybrown	yellow	mediumseagreen	olivedrab	forestgreen
ivory	papayawhip	burlywood	yellowgreen	springgreen	seagreen	darkslategray
beige	moccasin	tan	chartreuse	mediumspringgreen	lightseagreen	teal
lightyellow	wheat	khaki	lawngreen	aqua	darkturquoise	darkcyan
lightgoldenrodyellow	lemonchiffon	greenyellow	darkseagreen	cyan	deepskyblue	midnightblue
honeydew	palegoldenrod	lightgreen	mediumaquamarine	cadetblue	steelblue	navy
mintcream	palegreen	skyblue	turquoise	dodgerblue	blue	darkblue
azure	aquamarine	lightskyblue	mediumturquoise	lightslategray	blueviolet	mediumblue
lightcyan	paleturquoise	lightsteelblue	cornflowerblue	slategray	darkorchid	darkslateblue
aliceblue	powderblue	thistle	mediumslateblue	royalblue	fuchsia	indigo
ghostwhite	lightblue	plum	mediumpurple	slateblue	magenta	darkviolet
lavender	pink	violet	orchid	mediumorchid	mediumvioletred	purple
lavenderblush	lightpink	hotpink	palevioletred	deeppink	crimson	darkmagenta