

**Motion**

move 10 steps

turn 15 degrees

turn 15 degrees

go to random position

go to x: -87 y: -12

glide 1 secs to random position

glide 1 secs to x: -87 y: -12

point in direction 90

point towards mouse-pointer

change x by 10

set x to -87

change y by 10

set y to -12

if on edge, bounce

set rotation style left-right

☐ x position

☐ y position

☐ direction

Scratch	Scratch Values	Go+	Go+ Values	Note
move N steps	N = distance	step N move N	N = distance	step configurable walking animation
turnRight N degrees	N = degree	turn X changeHeading N	X = degree   Left   Right   *TurningInfo	turn configurable turn animation turn *TurningInfo can make the sprite rotate with another sprite, similar to the effect of a tortoise carrying a monkey
turnLeft N degrees	N = degree	turn -N changeHeading -N		
go to O	O = random position   mouse-pointer   SpriteName	goto O	O = Random   Mouse   SpriteName   SpriteObj	
go to x: X, y: Y	X, Y = coordinate	setXYpos X, Y	X, Y = coordinate	
glide N secs to O	N = second O = random position   mouse-pointer   SpriteName	glide O, N	N = second O = Random   Mouse   SpriteName   SpriteObj	
glide N secs to x: X, y: Y	N = second X, Y = coordinate	glide X, Y, N	N = second X, Y = coordinate	
point in direction N	N = degree	turnTo N setHeading N	N = degree	turnTo configurable turn animation
point towards O	O = mouse-pointer   SpriteName	turnTo O	O = degree   Left   Right   Up   Down   Mouse   SpriteName   SpriteObj	turnTo configurable turn animation
change x by Dx	Dx = coordinate	changeXpos Dx	Dx = coordinate	
set x to X	X = coordinate	setXpos X	X = coordinate	
change y by Dy	Dy = coordinate	changeYpos Dy	Dy = coordinate	
set y to Y	Y = coordinate	setYpos Y	Y = coordinate	
-		changeXYpos Dx, Dy	Dx, Dy = coordinate	
if on edge, bounce		bounceOffEdge		
set rotation style S	S = left-right   don't rotate   all round	setRotationStyle S	S = LeftRight   None   Normal	
x position		xpos		
y position		ypos		
direction		heading		
-		costumeWidth		
-		costumeHeight		
-		bounds		

## Looks

say Hello! for 2 seconds

say Hello!

think Hmm... for 2 seconds

think Hmm...

switch costume to costume2 ▾

next costume

switch backdrop to backdrop1 ▾

next backdrop

change size by 10

set size to 100 %

change color ▾ effect by 25

set color ▾ effect to 0

clear graphic effects

show

hide

go to front ▾ layer

go forward ▾ 1 layers

☐ costume number ▾

☐ backdrop number ▾

☐ size

Scratch	Scratch Values	Go+	Go+ Values	Note
say V for N seconds	V = text   number N = second	say V, N	V = text   number   ... N = second	
say V	V = text   number	say V	V = text   number   ...	
think V for N seconds	V = text   number N = second	think V, N	V = text   number   ... N = second	
think V	V = text   number	think V	V = text   number   ...	
switch costume to N	N = CostumeName   CostumeIndex	setCostume N	N = CostumeName   CostumeIndex   Next   Prev	
next costume		nextCostume		
-		prevCostume		
-		animate Name		Animate can play a frame-animation
switch backdrop to N	N = CostumeName   CostumeIndex   next backdrop   previous backdrop   random backdrop	startScene N startScene N, Wait	Wait = true   false N = CostumeName   CostumeIndex   Next   Prev	Random: * Scratch 3.0 added this parameter
next backdrop		nextScene nextScene Wait	Wait = true   false	
switch backdrop to N	N = previous backdrop	prevScene prevScene Wait	Wait = true   false	
-		Camera		Camera allow we create big scenes
change size by N %	N = scale percent	changeSize N/100.0		Scratch uses percentages
set size to N %	N = scale percent	setSize N/100.0		Scratch uses percentages
change G effect by N	N = percent G = color   fisheye   whirl   pixelate   mosaic   brightness   ghost	changeEffect G, N	G = ColorEffect   BrightnessEffect	
set G effect to N	N = percent G = color   fisheye   whirl   pixelate   mosaic   brightness   ghost	setEffect G, N	G = ColorEffect   BrightnessEffect	
clear graphic effects		clearGraphEffects		
show		show		
hide		hide		
go to front layer		gotoFront		
go to back layer		gotoBack		
go forward N layers	N = integer	goBackLayers N		
go backward N layers	N = integer	goBackLayers -N		
costume number		costumeIndex		
costume name		costumeName		
backdrop number		sceneIndex		
backdrop name		sceneName		
size		size * 100		Scratch uses percentages
-		visible		Whether the sprite is visible

Sound

play sound Meow until done

start sound Meow

stop all sounds

change pitch effect by 10

set pitch effect to 100

clear sound effects

change volume by -10

set volume to 100 %

☐ volume

Music

play drum (1) Snare Drum for 0

rest for 0.25 beats

play note 60 for 0.25 beats

set instrument to (1) Piano

set tempo to 60

change tempo by 20

☐ tempo

Scratch	Scratch Values	Go+	Go+ Values	Note
play sound S until done	S = SoundName	play S, true	S = SoundObj	
start sound S	S = SoundName	play S	S = SoundObj	
stop all sounds		stopAllSounds		
change S effect by N	N = percent S = pitch   pan left/right	changeEffect S, N		Not implemented
set S effect to N	N = percent S = pitch   pan left/right	setEffect S, N		Not implemented
clear sound effects		clearSoundEffect		Not implemented
change volume by N %		changeVolume N		
set volume to N %		setVolume N		
volume		volume		
Music related		-		Not implemented

Events

when clicked

when space key pressed

when this sprite clicked

when backdrop switches to 1

when loudness > 10

when I receive message1

broadcast message1

broadcast message1 and wait

when stage clicked

Scratch	Scratch Values	Go+	Go+ Values	Note
when flag clicked:		onStart =>		
when any key pressed:		onAnyKey key =>	key Key	
when K key pressed:		onKey K, => onKey [K1, K2, ...], => onKey [K1, K2, ...], key =>	key Key	
when this sprite clicked:		onClick =>		
when stage clicked:				
when backdrop switches to Name:		onScene name => onScene Name, =>	name string	
when loudness > N:		-		Not implemented
when timer > N:		-		Not implemented
when I receive Msg:		onMsg Msg, =>		
-		onMoving => onMoving mi =>	mi *MovingInfo	Triggered when the sprite is moving
-		onTurning => onTurning ti =>	ti *TurningInfo	Triggered when the sprite is turning
broadcast Msg		broadcast Msg		
broadcast Msg and wait		broadcast Msg, true		

## Control

wait 1 seconds

repeat 10

forever

if then

if then  
else

wait until

repeat until

stop all

when I start as a clone

create clone of myself

delete this clone

Scratch	Scratch Values	Go+	Go+ Values	Note
wait N seconds	N = second	wait N	N = second	
repeat N ... end		for range :N { ... }		
forever ... end		for { ... }		
if Cond then ... end		if Cond { ... }		
if Cond then ... else ... end		if Cond { ... } else { ... }		
wait until Cond		for !Cond {}		
repeat until Cond ... end		for !Cond { ... }		
stop X	X = all   this script   other scripts in sprite	stop X	X = All   AllSprites   AllOtherScripts   ThisSprite   ThisScript OtherScriptsInSprite	The difference between the parameters All and AllSprites: 1) All contains the stage, 2) All will stop the current script (only All and ThisScript will stop the current script, others will not)
when I start as a clone		onCloned => onCloned param =>	param interface{}	
create clone of myself		clone clone Param		
create clone of Sprite		Sprite.clone Sprite.clone Param		
delete this clone		destroy		Note: For the sprite prototype (not cloned), destroy will fail
-		die		Configurable death animation; Will call setDying to set itself as dead, and execute the death animation (if any)
-		setDying		Setting the state of death is also effective for the sprite itself (this state is quite special, although it is still visible, it can also execute the death animation, but it has not been able to touch, similar to a ghost)
-		isCloned		Whether the sprite is cloned

## Sensing

touching mouse-pointer ?

touching color ?

color is touching ?

distance to mouse-pointer

ask What's your name? and wait

answer

key space pressed?

mouse down?

mouse x

mouse y

set drag mode draggable

loudness

timer

reset timer

backdrop # of Stage

current year

days since 2000

username

Scratch	Scratch Values	Go+	Go+ Values	Note
touching O	O = mouse-pointer   edge   SpriteName	touching(O)	O = Mouse   Edge   EdgeLeft   EdgeRight   EdgeTop   EdgeBottom   SpriteName   SpriteObj	When the sprite detects that it has touched sprite O, the touched sprite O will trigger the onTouched event
-		onTouched => onTouched obj => onTouched N, => onTouched N, obj => onTouched [N1, N2, ...], => onTouched [N1, N2, ...], obj =>	N = name	N is the name of the sprite that met me, obj is the sprite object that met me
touchingColor Color	Color = color	touchingColor(Color)	Color = color	
color C1 is touching C2?	C1, C2 = color	-		Not implemented
distance to O	O = mouse-pointer   SpriteName	distanceTo(O)	O = Random   Mouse   SpriteName   SpriteObj	The distance between the sprite and an object
ask Msg and wait	Msg = text   number	ask Msg	Msg = text   number   ...	Not implemented: Both Sprite and Stage have an ask function but with different functions (Sprite uses say Msg, while Stage displays the prompt information in the input dialog box)
answer		answer		Not implemented
key K pressed?	K = key	keyPressed(K)	K = key	
mouse down?		mousePressed		
mouse x		mouseX		
mouse y		mouseY		
-		mouseHitItem		The sprite hit by mouse
set drag mode X	X = draggable   not draggable	-		Not implemented
loudness		loudness		
timer		timer		Not implemented
reset timer		resetTimer		Not implemented
Prop of O	O = Stage   SpriteName  Prop(Stage) = backdrop #   backdrop name   volume   VarName  Prop(SpriteName) = x position   y position   direction   costume #   costume name   size   volume   VarName			For Go+, no special mechanism is needed to obtain these attributes.
current T	T = year   month   date   day of week   hour   minute   second			Just use the Go standard library
days since 2000				Just use the Go standard library
username		username		Not implemented

Variables

Make a Variable

☐ my variable

set my variable to 0

change my variable by 1

show variable my variable

hide variable my variable

Make a List

☐ list

add thing to list

delete 1 of list

delete all of list

insert thing at 1 of list

replace item 1 of list with thing

item 1 of list

item # of thing in list

length of list

list contains thing?

show list list

hide list list

Scratch	Scratch Values	Go+	Go+ Values	Note
set VarName to V		VarName = V		
change VarName by V		VarName += V		
show variable VarName		showVar VarName		
hide variable VarName		hideVar VarName		
ListItem		ListItem.string		List type
add V to ListItem		ListItem.append V		
delete Idx of ListItem	Idx = index	ListItem.delete Idx	Idx = index   All   Last   Random	
delete all of ListItem		ListItem.delete All		
insert V at Idx of ListItem	Idx = index	ListItem.insert Idx, V	Idx = index   Last   Random	
replace item Idx of ListItem with V	Idx = index	ListItem.set Idx, V	Idx = index   Last   Random	
item Idx of ListItem	Idx = index	ListItem.at(Idx)	Idx = index   Last   Random	
item # of V in ListItem		-		Not implemented
length of ListItem		ListItem.len		
ListItem contains V?		ListItem.contains(V)		
show list ListItem		showList ListItem		
hide list ListItem		hideList ListItem		

Pen

 erase all

 stamp

 pen down

 pen up

 set pen color to

 change pen 

color ▾

 by 

10

 set pen 

color ▾

 to 

50

 change pen size by 

1

 set pen size to 

1

Scratch	Scratch Values	Go+	Go+ Values	Note
erase all		eraseAll		This command in Scratch 2.0 is called clear
stamp		stamp		
pen down		penDown		
pen up		penUp		
set pen color to C		setPenColor C		
change pen Prop by N	Prop = color   saturation   brightness   transparency	-		Not implemented
set pen Prop to N	Prop = color   saturation   brightness   transparency	-		Not implemented
change pen size by N		changePenSize N		
set pen size to N		setPenSize N		