

34. Comparisons

true.false	word.or.list = word.or.list
true.false	number < number
true.false	number > number
true.false	equal? word.or.list word.or.list
true.false	less? number number
true.false	greater? number number

35. Random Numbers

number	random number
	rerandom

36. Math Functions

sine	sin number
cosine	cos number
tangent	tan number
arctangent	arctan number
square.root	sqrt number
number	power number number
exponential	exp number
natural.log	ln number
log.base.10	log number
integer.part	int number
num.rounded	round number

37. Timer

	resett (RESET Timer)
10ths.of.sec	timer
	wait 10ths.of.sec

38. Interface with Excel

	openworksheet path sheet
	closeworksheet
	setcell row column value
value	getcell row column

39. Disk Access

path	chdir path (CHange DIRectory)
dir.list	currentdir
file.list	directories
file.list	textlist
file.list	projectlist
file.list	pictlist
file.list	files file.type
	erfile path (ERase FILE)

40. Manual Memory Control

free.space	space
	recycle

41. Useful Words

Some primitives can receive special words as inputs, here are some:

truth values	true, false
font styles	regular, bold, italic, underline
color names	black, blue, brown, cyan, gray, green, lime, magenta, orange, pink, red, yellow, turquoise, violet, white, sky
font names	Arial, [Courier New], [Times New Roman], [Comic Sans MS]
merge sources	procedures, pages, shapes
exporttext sources	cc, procedures
setinstrument names	piano, clarinet, guitar, violin, harpsichord, vibraphone, kalimba

42. Object Properties

The **set** and the **get** primitives need names of properties as inputs, here they are:

Project	presentationmode?, showtoolbar?, showcc?, showtabs?, showstatusbar?
Page	frozenbg?, transition, turtles, texts, buttons, sliders, melodies, sounds, music, hyperlinks, colordemons, frozenbg?, videos
Turtle	visible?, rule, on?, own, frozen?
Button	pos, size, rule, on?, frozen?
Slider	pos, showname?, limits, value, frozen?
Text	visible?, pos, size, transparent?, showname?, text, onreadline, frozen?
Color	turtlerule, turtlemode (once, eachtime), mousedown
Hyperlink	visible?, pos, showname?, link, frozen?
Melody, Music, Sound, Video	visible?, pos, on?, showname?, frozen?
Melody	instrument, volume, tempo
announce, question	pos

MicroWorlds Quick Reference †

1. Turtle motion

forward fd	distance
back bk	distance
right rt	angle
left lt	angle
glide	distance speed

2. Absolute Positioning

setpos	[x y]
setx	x.coordinate
sety	y.coordinate
home	

3. Absolute Turning

setheading seth	absolute.angle
---------------------------------	----------------

4. Motion and Turtle Information

x.coordinate	xcor
y.coordinate	ycor
[x y]	pos
absolute.angle	heading
number	distance turtle.name
absolute.angle	towards turtle.name
true.false	touching? turtle.name turtle.name

5. Pen Control

	pu (Pen Up)
	pd (Pen Down)
	setpensize size
size	pensize

6. Shapes

	setshape setsh name.or.number
shape.name	shape
	stamp
	snapshape
	shaparea shape [x y] [xsize ysize]
	setsize size
size	size
	saveshape path number
	loadshape path number

7. Colors

	setcolor setc name.or.number
number	color
	setbg background.color
number	bg
color.number	colorunder

8. Other Turtle Actions

	cg (Clear Graphics)
	clean
	infront
	fill
	turtlesown var.name
	ht (Hide Turtle)
	st (Show Turtle)

9. Graphics Page Control

	newpage
	namepage np name
	getpage page.name
	freezebg (FREEZE BackGround)
	unfreezebg
	newprojectsize [xsize ysize]
[xsize ysize]	projectsize
	snapshot
	restore
	savepict path
	loadpict path
	placepict path [x y] [xsize ysize]
	presentationmode
list.of.pages	pagelist

10. Objects in Page

	newturtle name
	newtext name [x y] [xsize ysize]
	newbutton name [x y] instruction.list
	newslicer name [x y] [min max now]
	remove name
	set object property value
prop.value	get object property
	freeze object.name
	unfreeze object.name

† Developed by OpenWorld Learning (OWL). March 2007

11. Project Control

getproject path
saveproject
procedures
setfooter word.or.list
merge path word.source
exporttext path word.source
importtext path text.name
createprojectvar word.or.list
projectvars
list.of.vars

12. Examples of Words & Lists

word	"mama
word	"Mama&Papa
word	" mama and papa
word	"C:\projects\farm
word	"
word	12345
word	-1.2E+10
list	[mama and papa are 2]
list	[]
list	[[mama 30] [papa 32]]

13. Word & List Composition

new.word	word	word1 word2
new.list	list	list1 list2
new.list	sentence	se list1 list2
list	fput	word.or.list list
list	lput	word.or.list list
list	parse	word

14. Parts of Words & Lists

word.or.list	first	word.or.list
word.or.list	last	word.or.list
list	butfirst bf	word.or.list
list	butlast bl	word.or.list
word.or.list	item	number word.or.list
word.or.list	pick	word.or.list

15. Word & List Information

number	count	word.or.list
true.false	empty?	word.or.list
true.false	word?	word.or.list
true.false	list?	word.or.list
true.false	member?	word.or.list word.or.list
true.false	number?	word.or.list
true.false	identical?	word.or.list word.or.list
ascii.number	ascii	char
char	char	ascii.number

16. TextBoxes

print pr	word.or.list
insert	word.or.list
cleartext ct	
delete	
transparent	textbox.name
opaque	textbox.name
stamptext	textbox.name
hidetext	
showtext	
word	textitem line.number textbox.name
word	textpick textbox.name
number	textcount textbox.name
	savetext path
	loadtext path

17. TextBoxes and Clipboard

	select
	unselect
word	selected
	cut
	copy
	paste
word	clipboard

18. Moving in a TextBox

	search	word
	sol	(Start Of Line)
	eol	(End Of Line)
	cf	(Cursor Forward)
	cb	(Cursor Back)
	cu	(Cursor Up)
	cd	(Cursor Down)
	top	
	bottom	
true.false	found?	
true.false	eot?	(End Of Text?)

19. Fonts, Styles & Colors

	setfont	word.font.name
	setstyle	word.font.style
number	setfontsize	number
	fontsize	
	settc	name.or.number
color.number	tc	(Text Color)

20. Command Center

	show	word.or.list
	cc	(Clear Commands)

21. Pop-up Dialogs

question	word.or.list
announce	word.or.list

22. Keyboard & Mouse Input

char	readchar	
true.false	key?	
word	answer	
	onreadline	textbox.name instruction
[x y]	mousepos	

23. Sound & Video

note	num.or.list duration
rest	duration
setinstrument	name.or.number
resetvideo	name

24. Addressing Instructions

	ask	who instruction.list
	talkto	turtle.or.list
	talkto	textbox
	listen	
	everyone	instruction.list
current.textbox	textwho	
current.turtle	who	

25. Variables

	make	var.name value
	name	value var.name
value	thing	name
	local	var.name
	let	list.of.names.and.vals
true.false	name?	word
list.of.vars	names	
	clearname	word
	clearnames	

26. Procedures

	to	proc.name :input1 :input2
	end	
	output op	proc.output
	stop	

27. Error Handling

	carefully	instruction.list aux.list
error.as.word	errormessage	

28. Conditional Actions

if	condition instruction.list	
ifelse	condition if.list else.list	
true.false	and	true.false true.false
true.false	or	true.false true.false
true.false	not	true.false

29. Sequential Repetition

repeat	number instruction.list
dolist	[var.name list] instruction.list
dotimes	[var.name num] instruction.list
run	instruction.list

30. Launching processes

forever	instruction.list
when	[condition] instruction.list
launch	instruction.list
setinstruction	instruction.list
clickon	

31. Stopping processes

stopall	
cancel	instruction.list
stopme	
waituntil	[condition]
clickoff	

32. Process Inspection

true.false	done?	instruction.list
------------	--------------	------------------

33. Arithmetic

sum	number	+	number
difference	number	-	number
product	number	*	number
quotient	number	/	number
minus	-number		
sum	sum	number	number
difference	difference	number	number
product	product	number	number
quotient	quotient	number	number
minus	minus	number	
remainder	remainder	number	number
absolute.value	abs	number	
3.14159	pi		