

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), mouseclick
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
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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
	newslider 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). April 2008

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
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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		