CS108L Computer Science for All
Module 4 Netlogo Code Cheat Sheet

Command / Variable	Description
patch # #	Given a pair of x and y coordinates, reports the patch containing those coordinates. **Note:** The coordinates are absolute coordinates; they are not computed relative to this agent. Compare this with **patch-at** in the NetLogo Dictionary.
ask patch # # [*commands*]	Asks the specific patch to run the commands given in the command block **Example**: **ask patch 1 3** **[** **set pcolor 15** ;; asks the patch at coordinates (1, 3) to set its color to red **]**
ask patches [*commands*]	Asks the all patches to run the commands given in the command block **Example**: **ask patches** **[** **set pcolor 15** ;; asks all patches to set their color to red **]**

if *condition* [*commands*]	If *condition* reports true, then the program runs the commands in the command block. The reporter may report a different value for different agents, so some agents may run *commands* and others don't.
	Example:
	ask turtles
	[
	   if xcor > 0
	   [
	     set color blue ;; any turtles whose xcor is positive (in the right half of the world) turn blue
	   ]
	]

ifelse *condition*	If *condition* is true, runs *trueCommands*.

[
   trueCommands
]
[
   elseCommands
]
	If *condition* is false, runs *elseCommands*.
	The reporter may report a different value for different agents, so some agents may run *trueCommands* while others run *elseCommands*.
	Example:
	;; below code turns left half of the world red and the right half blue
	ask patches
	[
	   ifelse pxcor > 0
	   [
	     set pcolor blue
	   ]
	   [
	     set pcolor red
	   ]
	]

who	Reports a turtle's identification number (starting at 0).
	Example:
	;; the below code turns one turtle red and all the other turtles green
	ask turtles
	[
	   ifelse who = 0 ;; if this turtle is the first turtle created
	   [
	     set color red ;; then set its color to red
	   ]
	   [
	     set color green ;; otherwise, set the turtle's color to green
	   ]
	]

patch-ahead #	Give you patch that is the given distance, #, "ahead" of this turtle, that is, along the turtle's current heading. Reports nobody if the patch does not exist because it is outside the world. **Example**: ;; turns the patch 1 in front of this turtle green; **ask patch-ahead 1**

	[**set pcolor green** **]**
not	
any? *criteria*	Reports true if there are any turtles with the criteria. Otherwise reports false. **Example:** ;; shows "at least one turtle is red!" in the Command Center if there are any red turtles **if any? turtles with [color = red]** **[** **show "at least one turtle is red!"** **]**

turtles-on	Reports the set of turtles that are on the given patch or patches.
	Example:
	ask turtles
	[
	   if not any? turtles-on patch-ahead 1 ;; if there are no turtles on the patch ahead
	   [
	      fd 1 ;; then move forward 1 step
	   ]
	]