NetLogo

- Ticks - Sort of like time.
    - Can see amount of ticks have happened on top of simulation view
- Turtles - Agents of the simulation that communicate through links
    - Note: turtles can be anything (e.g. Cars, animals, etc)
- Links - Line of communication between any two turtles
- Patches - Cells that make up the simulation view
    - Turtles operate on and move across patches.
    - Simulation view is made up of n x m patches
- Procedure - a series of NetLogo commands (a method)

Models

Load Models

File > Models Library > SECTION > MODEL > Open

Press setup to set initial model state (will read settings from code tab, overwriting any settings you changed in command centre)

Press go to initiate model simulation

Controlling the simulation

Speed: Use speed slider

Reset: Press setup (Doesn't reset variable values to default. Must reload model to do that)

Start / stop: Press go

Edit variable values: slide green value sliders (alt. right click and edit. Change value in text box)

Model Info

Click info tab to learn about model and how to operate / try things within the model's domain.

Plots and Monitors

Plots

Plots show the change in value over time. In the wolf-sheep model, the sim takes into account pop. of wolves, pop. of sheep and amount of grass. So you will see 3 lines on your plot.

Can export plots to CSV, if you wish.

File > Export > [Export Plot | Export Plots]

Monitors

Monitors (little boxes with numbers in them) display model info e.g. amounts

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Editing the View

Press settings to open the view settings

Here you can edit the max-pxcor: max patch xcoord (width) and the max-pycor: max patch ycoord(height)

The view is made up of a 2x2 grid of patches (cells). You can also change the patch size, making it's contents larger and more visible.

Finally, you can change whether x,y coordinates start from the centre, a corner, or a side.

Settings > Location of Origin [Center | Corner | Edge | Custom]

Can resize view dynamically, without settings dialog, by dragging cross-hair over view. When a grey border is present, can drag black handles to resize.

Models Library

- Sample Models
  - Organised by subject area
  - 200+ models
  - If marked "Unverified" - Complete and functional but have yet to be reviewed for content, accuracy and code quality.

- Curricular Models
  - Used in Schools

- Code Examples
  - Demonstrations of NetLogo features
  - Useful for extending existing models / building new ones
    - E.g. histogram; see Histogram Example

- HubNet Activities
  - Contains participatory simulations for use with groups.

Commands

Right click single entity to edit its variable values

Click watch me to track it in the simulation view.

who refers to the turtles id

Command Centre

Found at bottom of program

Change modes: press tab in command centre or click the current mode to change to a new one.

Observer Mode

- To change patch colour
    - ask patches [set pcolor COLOR]
        - ask patches controller to do a command for you
    - pcolor is patch color variable
    - COLOR can be 16 known colours, or a number value to get more specific results (see docs)

- To change single patch colour
    - ask patch PXCOR PYCOR [set pcolor COLOR]

- To change all turtles colour
    - ask turtles [set color COLOR]
        - ask turtles controller to do a command for you
    - color is turtle colour variable
- To change one turtle's colour
    - ask turtle ID [set color COLOR]

Patches Mode

- To change patch colour
    - same as before without ask patches

Turtles Mode

- To change turtle colour
    - same as before without ask turtles

Procedures

Setup Button

- File > New
- Add > Click on Interface
- Name button setup
- click ok on dialog
- run to see what an error message looks like in NetLogo

Initiate Setup button

- Code tab

```
to setup
  clear-all
  create-turtles 100 [ setxy random-xcor random-ycor ] ; 100 turtles with random locations
  reset-ticks ;Set time to 0
end
```

setup corresponds to the command name given to the button

Tick based view updates

Drop down box and change from continuous to on ticks. Makes view update at a consistent interval.

Go Button

Same as setup button, this command is go, instead of setup

Will need to write a to go procedure.

Variables

ENTITY-owns [variableName]

e.g. turtle-owns [energy]

To change variable name

- set VARIABLE NEWVALUE
    - set energy energy + 1

Monitors

Similar to creating a button.

Click dropdown menu to choose monitor

Click add and select somewhere on the interface.

Enter reporter and a display name (optional)

Press ok

Reporter

- What you want to report on
    - count turtles (number of turtles)