Neural LinkUP Activity Guide
Mission 2: Neuron Navigator, Objective 4

Name:

The activity for this objective is to run a simulation of a chain of neurons communicating, starting with the first CodeX "neuron" and continuing through the chain until each CodeX "neuron" has received the message.

1. Select a radio channel for your team. Each neural network team needs its own unique channel. This channel is set in code and not changed during the program run. ● Available channels are 1 through 13. ● This simulation can be completed as an entire class. If so, everyone will use the same channel, channel 6. ● If the class has more than one team, each team chooses its own channel. Avoid adjacent radio channels. For example, each team uses an odd-numbered channel.	☐ Radio channel for team: _____
2. The simulation creates a chain of neurons. The chain can have any number of CodeX. Count the number of CodeX in your chain. ● Each CodeX in the chain will have its own number. ● One person will choose # 1 and start the network chain. ● One person will be the last # and end the network chain. ● All other CodeX select a unique number. Each number in the chain should be assigned to a CodeX. ● The network communication will be passed from number to number, CodeX to CodeX, until it is complete.	☐ Simulation organized: ☐ Total number of CodeX in chain: _____ This will be the value of CHAIN_MAX. ☐ My number in the chain: _____
3. Go to **File ➜ Browse Files...** and open the file called **BRN_neural_network1**	☐ File opened
4. Go to **File ➜ Save As** and name the file **neural_network1**	☐ File saved as **neural_network1**
5. Follow CodeTrek to assign values to the constants: ● Set the value of CHAIN_MAX (number of CodeX in chain) ● Set the radio channel (if different from channel 6)	☐ CHAIN_MAX (number of CodeX) set ☐ TEAM_CHANNEL (radio channel) set
6. Follow CodeTrek to complete the Main Program: ● Call the function to set your CodeX number ● Call the functions to start the simulation ● Call the function for the CodeX to wait for their turn ● Call the function to end the simulation	☐ CodeTrek followed
7. Run the code. Fix any errors or problems with the code. Then stop the code and reset for the actual simulation.	☐ No errors in the code
8. Run the code. Select your assigned #. Press BTN_A to scroll through the #s, and then press BTN_B to select the #.	☐ # is selected
9. # 1 starts the simulation by pressing **BTN_A**.	☐ Simulation started

10. # 1 fires signals (U/D/L/R) until its strength is 100.
   • It will then fire a signal to # 2.
   • # 2 fires signals until its strength is 100.
   • It will then fire a signal to # 3.
   • The process is repeated until the last # reaches its strength of at least 100.	

11. The last # fires a signal back to # 1. This CodeX stops the timer for the simulation and sends the time to all CodeX devices. The time is displayed on each screen.

To run the simulation again, restart the program.

Record your time for at least three simulations. You can change your # in the chain each time, or keep the same #.

Simulation times:

Simulation #1	
Simulation #2	
Simulation #3	
Simulation #4	

Reflection: Summarize what this simulation represents:

Reflection: What was easy about this Mission Objective?

Reflection: What was difficult about this Mission Objective?