



## In the Classroom:

**Grade Level:** 10-12  
**Building Skills:** None  
**Other Skills:** None

**Time:** 45 min  
**Programming Skills:** Bluetooth, Display

# NXT Text Messaging



*Can you use the Bluetooth feature to turn your NXT into a text messaging device?*

## **Challenge**

Establish a Bluetooth connection between 2 NXTs and use one to send a text message to the other.

## **Materials**

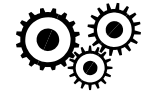
2 NXTs

## **Skills Learned**

Bluetooth, controlling the NXT display

## **Procedure**

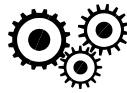
1. Turn the Bluetooth feature on for both NXTs:
  - a. On the NXT's menu, scroll over to BLUETOOTH using the light grey arrows.
  - b. Select BLUETOOTH by pushing the orange button.
  - c. Scroll over to ON/OFF. Select ON/OFF.
  - d. Turn the NXT ON. When you select ON, a little Bluetooth symbol will appear in the upper left hand corner of the screen.
2. Rename each NXT so that they can easily identify one another.



- a. In NXT-G, select your NXT WINDOW icon in your bottom right corner control panel.
- b. Select your NXT under your COMMUNICATION tab.
- c. In the right corner is a box to rename your NXT. Click the bottom to the right when done
3. Choose one NXT to be the sender and one to receive the text message. The sender will need to establish a connection with the receiver NXT.
4. Establish a connection between your NXTs.
  - a. Return to the BLUETOOTH option on the NXT menu.
  - b. Scroll over to SEARCH on the sender NXT.
  - c. Select SEARCH and choose your receiver NXT (look for the name). This need be only done with one of the NXTs.
  - d. You will then be prompted to choose a slot (the NXT can be connected to 4 devices at a time).
  - e. If done correctly, each NXT will beep and be prompted to enter a passkey. The passkey is 1234 and should be automatically entered on the screen.
  - f. Select the checkmark on both NXTs to establish a connection. Connection can be verified by looking up in the top left corner. If the Bluetooth symbol only has a < sign next to it, no connection is made. If it has <> then a connection is made.
  - g. After you have established a connection you will be able to see the connection under BLUETOOTH:CONNECTIONS. Both NXTs will show the other.
5. Write a program for the NXT to send a message.
  - a. First use a TEXT block to type the message you wish to be displayed on your other NXT.

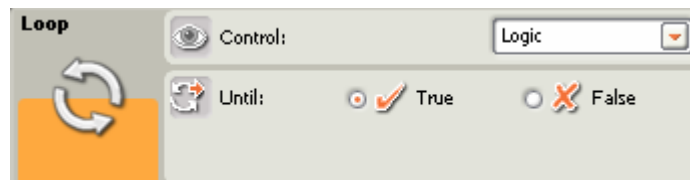
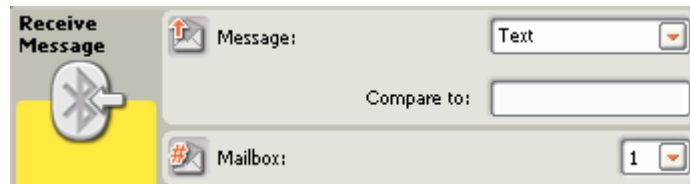


- b. Then add a SEND MESSAGE via Bluetooth block. Select the connection number you previously designated when establishing a Bluetooth connection between your NXTs. Also select the type of data being sent. In this case Text.

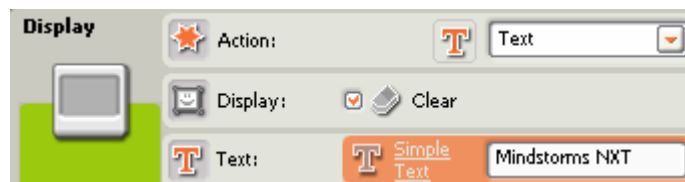


c. Bring down the dropdown menus for both blocks (click the bottom of the block) and wire the Text output of the TEXT block to the Text In input of the SEND MESSAGE block.

6. On the other NXT, write a program to receive the text message.
  - a. First use a RECEIVE MESSAGE via Bluetooth block to monitor for an incoming message. Place this block within a LOOP so that it continually monitors for the incoming message. Be sure to set the RECEIVE MESSAGE block to receive Text and to set the LOOP to continue till True.

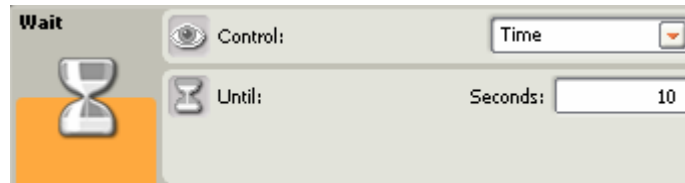


- b. Bring down the dropdown menu for the RECEIVE MESSAGE block and wire the Bluetooth In output to the True/False Input of the Loop. This will force the program to loop until a message is received.
  - c. Then add a DISPLAY block so that the message received will appear on the NXT screen. Set the display to appear as Text.





- d. Bring down the dropdown menu for the DISPLAY block and wire the Text output of the RECEIVE MESSAGE block to the Text In input of the DISPLAY block.
- e. Finally add a WAIT for Time block so that the message will appear on the screen for a period of time and then disappear to allow the program to run again.



7. Start the receiving program first, and then start the sending program.

## LEGO Tips

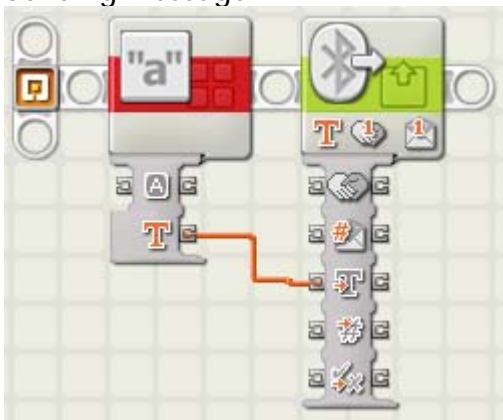
Be sure to name your NXTs before establishing a Bluetooth connection. This will allow you to be sure that you are connecting with the right NXT. (All NXT bricks are named "NXT" by default).

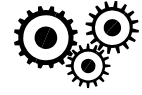
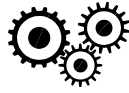
## Extensions

1. Establish a connection between the NXT and your computer so that you can wirelessly download programs.
2. Use your NXT to NXT connection to send data in addition to text. Use the sent data to control something on the receiving NXT.

## Sample Program

Sending Message:





Receiving Message:

