**In-Class Activity: Breadboarding Circuits and Writing an Arduino UNO Sketch**

For this task, you are provided with an Arduino UNO, the Arduino IDI program, a USB 2 cable, a breadboard, connector wires, two 240𝛺 resistors, and one blue and one red light-emitting diode (LED).

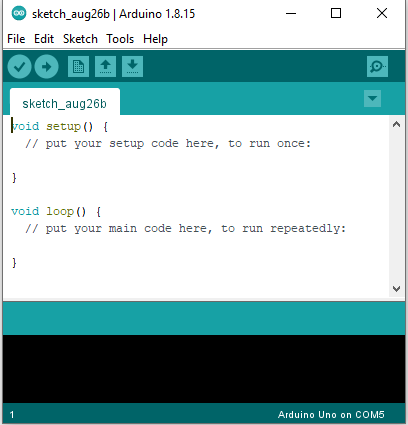
**Complete the following:**

1. Use these components to “breadboard” two resistor/LED circuits. Each circuit should operate off of a different Arduino digital pin. One circuit should operate the Blue LED and the other circuit should operate the Red LED.

2. Once you have “breadboarded” your two circuits, connect the Arduino UNO to the computer using the Type 2 USB cable, and then open the Arduino IDE. The Arduino IDE icon looks like this:



3. The Arduino IDE should open a new sketch that will look like this:



If this is not what you see, open a new sketch by clicking “File” on the menu bar and selecting “New.”

4. Write an Arduino sketch (program) to cause the following to occur:

The Blue LED should blink twice (ON, OFF, ON, OFF), then the Red LED should blink once (ON, OFF), with 0.5 seconds between each event. This sequence of blinks should repeat as long as your Arduino sketch operates. This sequence is shown below:

BLUE (ON, 0.5 sec.) 🡪 BLUE (OFF, 0.5 sec.) 🡪 BLUE (ON, 0.5 sec.) 🡪 BLUE (OFF, 0.5 sec.) 🡪 RED (ON, 0.5 sec.) 🡪 RED (OFF, 0.5 sec.) 🡪 REPEAT

5. Document the purpose of each line of your program using “comments” in your program.

6. Verify/Compile your sketch.

A. If there are errors, debug your sketch and repeat step 6.

B. If there are no errors, upload your sketch to the Arduino UNO and verify the LEDs blink as specified in step 4 of this activity.

* If the LEDs do not blink, or do not blink as specified in step 4, evaluate you sketch and/or your breadboarded circuits, correct the error(s), and repeat step 6.
* If the LEDs blink as specified in step 4, or if time is up and you have not corrected the error(s), proceed to step 7.

7 Record the time (from the clock at the front of the room) when one of these events occur:

A. You successfully complete the assignment: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (time)

**OR**

B. You quit working on the assignment before successfully completing it:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (time)

8. Copy and paste your Arduino sketch into the bottom of this page of this activity sheet.

9. Save this document as “Arduino1.doc” and submit the assignment electronically using the Blackboard submission link.

10. Write your first and last name on the index card provided, and leave the card and your wired Arduino and breadboard at your workstation.

**COPY and PASTE your Arduino Sketch below. Be sure to get the ENTIRE program.**

**(Do this whether or not you were able to successfully complete the activity.)**