Summary:

Students will form small groups and use the *Arduino Mega* to demonstrate serial communication between 2 Arduino micro-controllers. Students will connect the Arduinos, designating one as the master, and the other the slave, and write 2 *simple* programs allowing the Arduinos to communicate via their I2C's.

Materials:

Each student team should have the following materials, equipment, and supplies:

1. Two Arduino Megas w/ USB cable
2. A computer with Arduino IDE installed
3. Jumpers or wires

Procedure:

1) Connect the grounds of both boards to each other.
   Note: This is called "sharing a common ground"
2) Connect the master board to your computer via USB.
   Note: If powering the boards independently is an issue, connect the 5V output of the Master to the VIN pin on the slave.
   Note: Serial communication will not work if the slave is connected to the computer.
3) Connect pin 4 (the data, or SDA, pin) and pin 5 (the clock, or SCL, pin) on the master board.
4) Connect the wire from pin 4 on the master to pin 4 on the slave, and the wire from pin 5 on the master to pin 5 on the slave.
5) Using Arduino IDE, write a program for the master to request the slave to perform the fallowing mathematical calculation: 4 x 5, and report back the answer of: "The answer is 20"

References:

This activity is modeled after an activity on Arduino's website. The web address is https://www.arduino.cc/en/Tutorial/MasterReader