day81 Arduino fader
4/4/22

We're going to do a fading LED light today, like the sleep light on a Macintosh computer (Instead of blinking on and off, your light will glow, getting brighter and dimmer smoothly.) We do this using Pulse Width Modulation, a technical term you'll understand in a minute.

You will build one circuit with a breadboard and one Arduino. Each person writes their own program. Work together with your partner on this.

Steps:

1. In the Arduino book read <u>from</u> "Controlling Light with PWM" on page 54 <u>to</u> "Let's try it out." on p. 56.

2. Build the circuit shown on page 56 using your breadboard and the correct parts. Get the correct resistor by referring to the resistor values here:

3. Open the program "Arduino_fader_starter_file.ino" which I emailed to you (plus it's attached to this assignment in the Google Classroom).

4. Upload the program to your Arduino. Your light should start to pulse on and off smoothly.

5. Look over the program, discuss it with your partner. Do you understand what each line is doing? Look at the book, talk to each other, or your neighbors, or get help. The idea is that you should understand what the program is doing before we're done today.

6. Play with the numbers. Is the best result leaving it at a delay of 10ms? Make the delay length a variable to make it easy to experiment... Try different values, figure out what you think works best. After you have experimented and have found the best value in your opinion (it must be different from what is in the book), show me.

Each person needs to make their own program. Share the one Arduino with the one circuit. Your values must be different from your partner's.

Call me over to check you off. I'm going to ask both of you to walk me through the code as well as to tell me what delay values you tried and why the one you have chosen at the end is the one you like the best. If you don't understand the code, re-read the Getting Started With Arduino book section I asked you to read above, talk with your partner, talk with someone else in the class.

Turn in the sketch on the Google Classroom.