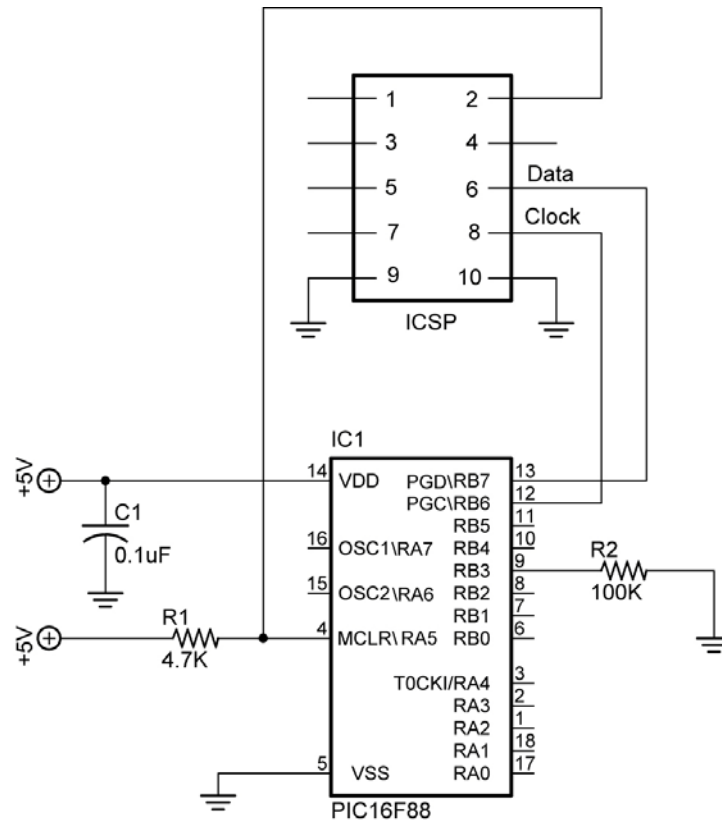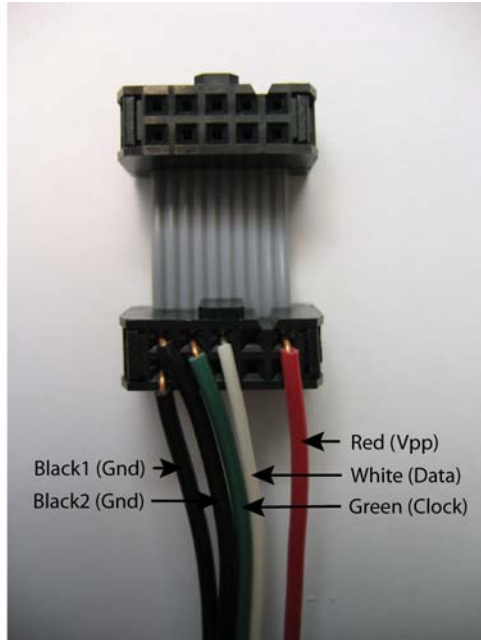# In-Circuit Serial Programming with PicBasic Pro
Cornerstone Electronics Technology and Robotics II

- **Administration:**
    - Prayer
- **In-Circuit Serial Programming (ICSP):**
    - Up to this point, when programming a PIC chip, the chip was physically removed from the circuit and placed in the ZIF. By using in-circuit serial programming, the PIC chip remains in the circuit while programming occurs.
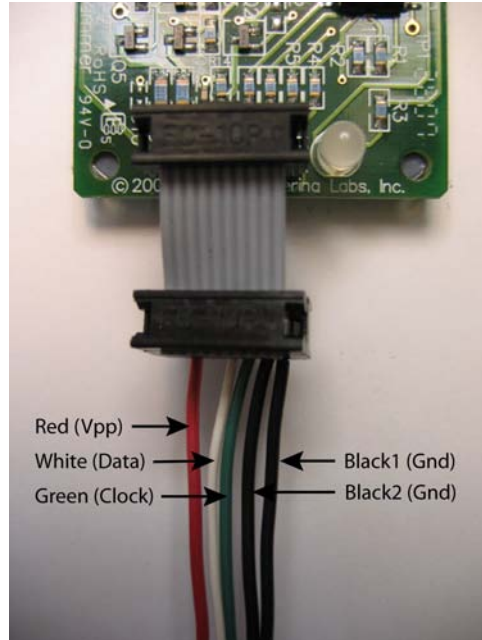   - Schematic for PIC16F88:
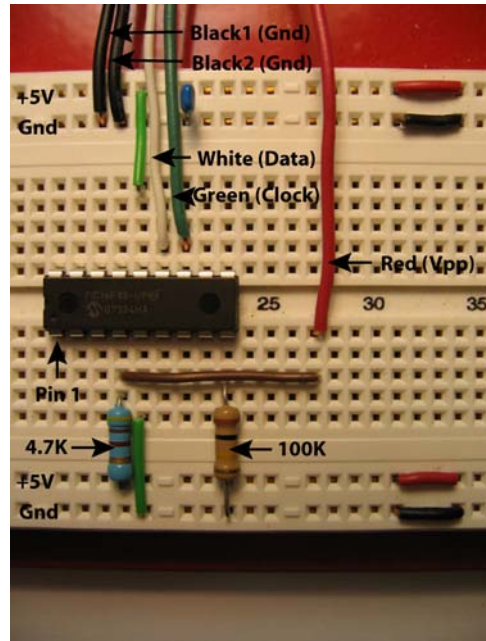

In Circuit Serial Programming
(ICSP) Connections

o Photos:

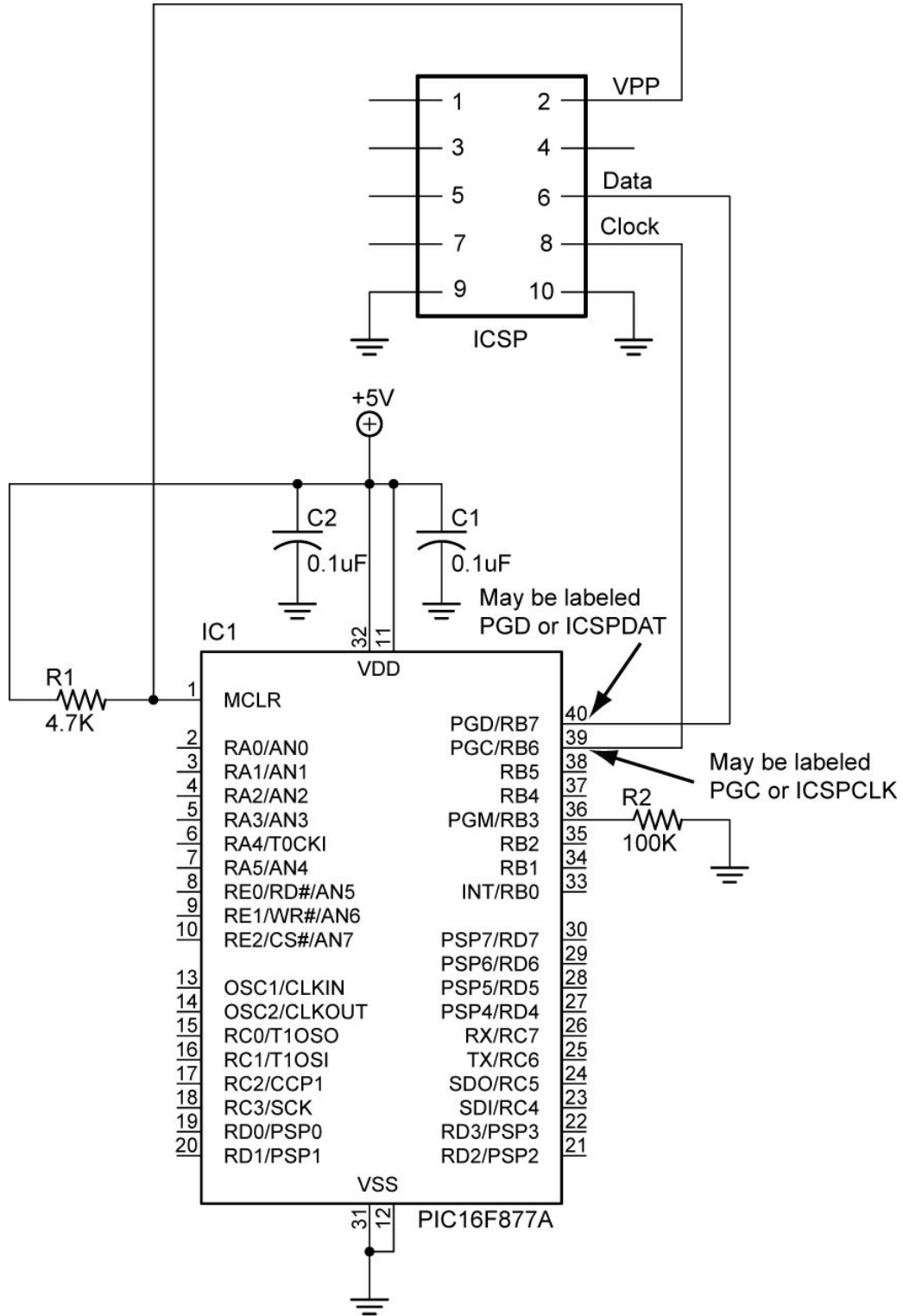

**Underside 10-Pin
Header Cable**

**Top View 10-Pin Header Cable
in melabs Programmer**

Breadboard Connections

o   Schematic for PIC16F877A:

In Circuit Serial Programming
(ICSP) Connections for 16F877A

Electronics and Robotics II
In-Circuit Serial Programming LAB 1 – blink2

- **Purpose:** The purpose of this lab is to acquaint the student with the ease of programming a PIC with in-circuit serial programming.

- **Apparatus and Materials:**

    - 1 – Analog/Digital Trainer or breadboard with 5 V Supply
    - 1 – 150 Ohm, ½ Watt Resistors
    - 1 – 4.7K, ½ Watt Resistor
    - 1 – LED

- **Procedure:**
    - Keep the ICSP connections to the breadboard
    - Open **blink2.pbp** and download to your chip. Wire your breadboard for blink2.
    - Change the pin location and blinking times and download without removing the PIC MCU.

blink1, blink2, blink3