Intro to Microcontrollers
Class 1: Programming and Output

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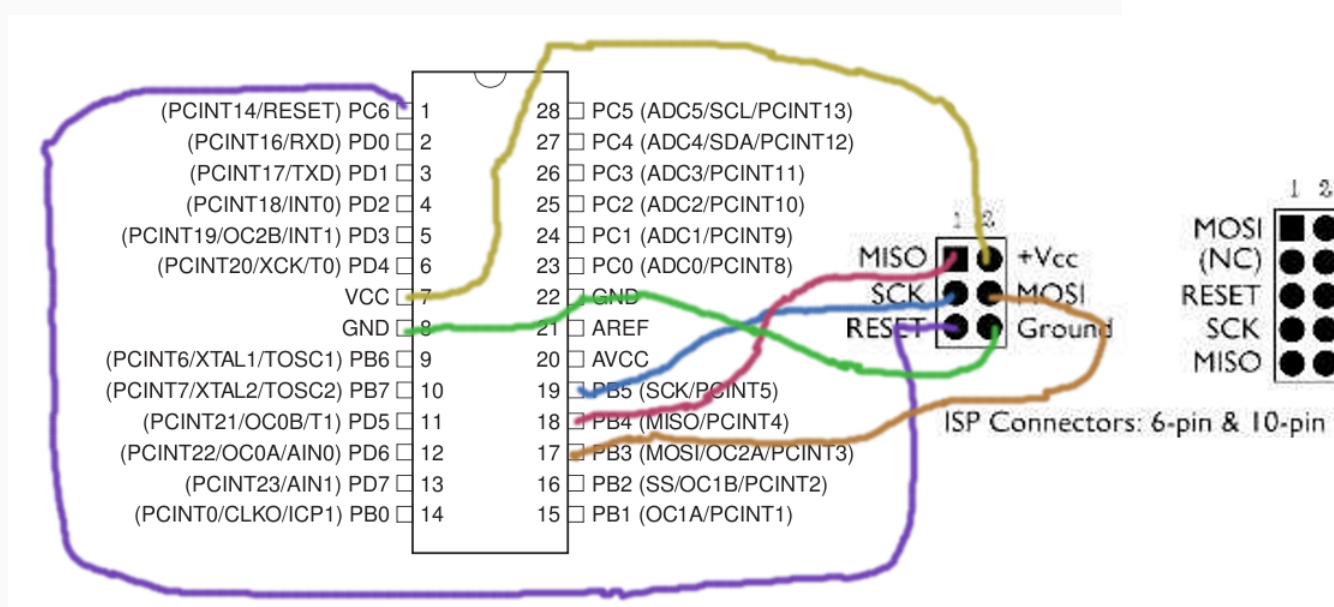# Hello World!

Microcontroller version

- ▶ Set up the programmer to program the chip
  programmer and chip speak the same three-wire serial dialect
- ▶ Set up the chip in a breadboard
- ▶ Connect an LED up to a pin on the chip
- ▶ Flash the chip with a (trivial) program that blinks the chip
- ▶ Revel in your full blinky glory!

Programmer setup

- ▶ VCC: Positive voltage to run the chip. 5v in our case.
  Provided by programmer.
- ▶ GND: Ground. 0v.
- ▶ SCK: Serial Clock. Alternates between 5v and 0v.
  Tells the chip when to read the bits coming down the data
  line.
- ▶ MOSI: Master Out, Slave In: Programmer (master) to chip
  communication channel.
- ▶ MISO: Master In, Slave Out:
  Chip to programmer communication channel.
- ▶ RESET: Reset line. Holding this line high tells the chip to
  expect program data to be coming over the SCK, MOSI,
  MISO data serial communication lines.

Wiring up the Programmer:

Flashing the Program:

- ▶ Download the zip file, uncompress
- ▶ Look over the Makefile. Particularly the first few defines.
- ▶ Make it.
- ▶ Flash it.

The End