This week we will work with serial interfaces, which are signals sent on a small number of wires. Parallel interfaces will send all data bits simultaneously on different wires, while serial interfaces have one data wire(or sometimes two to allow receiving and transmitting at the same time). The bits making up the signal are arranged sequentially in time with a protocol setup in advance for both receiver and transmitter.

Parallel interfaces are nearly extinct, so it is important to understand how serial interfaces work, both for systems which need them configured and also for inter-circuit communication. For example, stand alone DACs and ADCs usually communicate by serial, as does the chip programmer for the Arduino. Many pieces of lab equipment will also use this interface, although if you are connecting them to a computer you usually can use prebuilt software, or libraries which let you ignore most of these details. USB interfaces (ubiquitous at this point) use a similar protocol but have extra bits to specify which USB device is being talked to and a few extra bits to specify the type of communication.

Please read pages 1-5, 7,8,9 of the following PDF. From this PDF or from other web resources, focus on figuring out the role of:

- The start bits
- The stop bits
- Parity bits
- Baud Rate

Which of these bits are mandatory?

Additionally try to understand how the serial read in knows WHEN to sample.

http://web.engr.oregonstate.edu/~traylor/ece473/lectures/uart.pdf