Timeline for Scratch For Arduino Workshop

Total Prep Time: ~ 1hour (could be more depending on the number of board and types of sensors)  
Total Duration: ~ 2 hours

Before the workshop:

* Prepare all the Arduinos by ensuring the Scratch For Arduino firmware is loaded[[1]](#footnote-1). Also, sensors that require accompanying circuits, such as the photocell or FSR, should be built.
* If possible, have the participants download the drivers for the Arduino. ([Windows Instructions](http://arduino.cc/en/Guide/Windows#toc4))([Mac OSX](http://arduino.cc/en/Guide/MacOSX)). For Mac the drivers can be installed beforehand. For windows, you have to plug in the Arduino, then install the drivers. This is a huge headache but is unavoidable due to the way Windows handles drivers . The easiest solution is to have all participants download the software and store it on their desktop, so it can be easily found the day of the workshop.

Workshop Timeline:

* Introduction (5 min)
  + Explain who you are and what we will be doing
  + Generally the format will be an introduction to key terms, a handful of demos, and then free time
* Introduce Arduino+ Sensors (5 min)
  + Talk about what an Arduino is; simple microcontroller.
  + Describe all the sensors and actuators in use. Make sure to not use technical language. Describe the sensors as what information they provide, such as “light”, “force”, and “rotation”. Avoid overly technical names or explanations.
  + Introduce the participants to the datasheet for each sensor and actuator. Each sheet provides information about the object, how to hook it up, and what Scratch blocks are required to communicate with it.
* First Example (5 – 10 min)
  + Quickly move to a point where people are working with the Arduino. The most basic example is to make the onboard LED blink. This small example if very powerful and shows people that they can control the Arduino.
  + Come up with some variations, make it blink at different rates
* Introduce Arduino + Pins (5 min)
  + Need to describe what all the pins on the Arduino are, and how you can hook up sensors to those pins
  + Need to understand the difference between Analog/Digital and Input/Output.
  + Very important to state the difference between 5.0V and 3.3V if low-voltage parts are in use. Applying 5V to a 3.3V part will destroy it.
* Servo Example (5 – 10 min)
  + Instruct the participants on how to connect the servo to their Arduino, then use the motor block to rotate the servo
  + This example is the first introduction on wiring in new parts and may take some time for everyone to get right. However people can easily expand the example once its connected
* Additional Examples (20 min)
  + Run through a couple more examples as needed, particularly the LED and FSR examples as it shows how to connect an input to an output and how they can influence one another.
  + In these additional examples you can incorporate more advanced topics such as loops, variables, and conditional statements.
* Free time (1 hr)
  + At this point everyone should be sufficiently versed on how to control components and hook up new ones as necessary.
  + Give them free time and access to remaining sensors and see what they come up with
  + More advanced groups will be eager for different parts, while others may iterate on the existing examples
* Presentation (15 min)
  + If possible, have all the groups present their work. This may reveal new ideas that others have not thought of.

1. <http://seaside.citilab.eu/scratch/downloads> [↑](#footnote-ref-1)