

Arduino Lab Portfolio Checklist

Each student in the class will work through a series of tutorials/Labs using the Arduino Uno microcontroller. A sample list of the tutorials we will be completing for this unit are shown below. Labs will be added or deleted items from this list periodically.

PowerPoint slides will be updated for each tutorial completed.

The **requirements** are:

1. Title Page with your name, teacher’s name, course code, and relevant picture
2. Table of Contents with hyperlinks to jump to specific pages within the PowerPoint (making it easier to navigate)
3. Tutorial Title (each tutorial needs to have its own section within the portfolio)
4. Parts List (for each lab) - this can be written in text on a slide. Tinkercad has a button in the top right corner that allows you to export the list of components used in your circuit.
5. Photo(s) of your completed Arduino circuit. Tinkercad allows you to download a photo of your circuit if you go to SHARE > SNAPSHOT OF YOUR CIRCUIT. Located in the top right of your browser.
6. Uploaded video narrated by you of the circuit of both circuits working (pre and post extension) for every new lab in Tinkercad. For the extension circuit, you can explain the difference between the modification and the original circuit and not explain everything from scratch.
You will need to use a microphone to explain:
 - > how the code works (line by line in the order that Arduino processes it)
 - > what is happening in the circuit as it runs. If the circuit’s output depends on input from a switch or other device, it would be helpful to show all of the possibilities and explain it by referencing the code
 - > the components that were used and how they work.
 - > any other relevant information that you think would be helpful for me to know to prove your full understanding of the circuit.
7. Collaboration link to each circuit so that I can test it. To get the link, open up your circuit and go to SHARE > INVITE PEOPLE > GENERATE NEW LINK > COPY
8. Arduino code (paste code in the PowerPoint slides AND provide a link to the code after you share it in your Google Drive. When you are providing a link, make sure the Arduino file is available for those who have the URL). Make sure your code includes a header, well named variables, and detailed comments throughout.
9. Describe what went well within your video OR slides
10. Describe any problems you encountered and how you resolved them. Here you will outline any troubleshooting steps you took to arrive at a fully functioning circuit. This would demonstrate your Thinking / Inquiry skills.
12. Answers to discussion questions within the labs
13. After you finish all of the labs, I would like you to think of a summative (final project) involving all of the combined knowledge from the labs that we have covered. It should involve one NEW component (example: sensor or new integrated circuit chip) that we have not covered through the labs. The extension to the labs should build off of the programming skills that you have learned but should add a layer of complexity. Make it a good summative that I could reasonably give to this class and have it completed within about a week. It can involve construction but it does not have to. You can find inspiration online but I would like you to put your own spin on it based on research that you do. Explain what you need to learn and why it would make a good assignment.

The checklist below is designed to assist you in documenting your progress.

Tutorial	Completed	Discussion Questions	Photo and Video	Code Completed / Commented
1. Lab 1: Morse Code (LED’s) with a narrated video				

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Student Name: _____

Student #: _____

2. Lab 1 (Extension): Speaker OR RGB LED component [video without narration]				
TBA - More labs to be updated here soon.				