

Lesson Title	Google AIY Investigation
Sequence	2 of 6
Duration	<ul style="list-style-type: none"> ● 45 minutes for instructions and investigation ● 45 minutes for student discussion and demonstrations
Materials	<ul style="list-style-type: none"> ● Handout ● Google AIY Vision Kit
Objectives	Students will examine less abstract technology that utilizes artificial intelligence and machine learning techniques and make connections to the technology they interact with on a regular basis.
Standards	Indiana <ul style="list-style-type: none"> ● CSII-6.1 Describe the function of a computing artifact ● CSII-6.2 Identify the purposes of a computing artifact ITEEA <ul style="list-style-type: none"> ● 3 Students will develop an understanding of the relationship among technologies and the connections between technology and other fields of study. ● 4 Students will develop an understanding of the cultural, social, economic, and political effects of technology. ● 13 Students will develop the abilities to assess the impact of products and systems. CSTA <ul style="list-style-type: none"> ● 3A-IC-24 Evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices. (P1.2)

Lesson Notes:

This is designed to be a student-driven activity that affords student choice. First, students should experiment with the Joy Detector program. This will give them an idea of how the Google AIY camera is working. They can work in groups and investigate how the program reacts to multiple faces making different facial expressions.

Then, students should look up the other programs that are available on the Raspberry Pi. The Google AIY instructions are linked in their handout. They should work in teams and choose a program to investigate. This investigation is very similar to the process they completed in Lesson 1. This would be a great time to remind them of any areas that needed to be improved from the first investigation.

At the end of this activity, students should practice their oral communication skills by explaining the function and purpose of the device they chose. They should recap the discoveries they made during their individual investigations so students have an opportunity to experience a wide variety of devices.

Assessment: This task will be assessed for thorough responses, clear communication, and timeliness.

Lesson 2 of 6: Google AIY Investigation

In this assignment, you will be working with a piece of computing technology that currently harnesses neural network technology - the Google AIY Vision Kit. (It is okay if you don't know what neural network technology is yet. That's coming up next.)

Using the Google AIY Vision Kit, explore the Joy Detector. The instructions for booting the camera up, connecting it to your monitor, and using the Joy Detector can be found [here](#).

After you have had a chance to explore the Joy Detector, choose another demo to explore. There are several to choose from. The instructions explaining how to stop the Joy Detector and access a new demo are located [here](#). (This process uses Unix commands to navigate between files. If you have questions about this, we can definitely explore how this works. It works on your Mac, too.)

Experiment with the demo and document your process. Take notes regarding the strengths and weaknesses of the device. Use your notes to complete this table.

What demo are you reviewing?	
What is the function or purpose of this demo?	
What does this demo do well? (Describe the inputs you used and the outputs you received)	
What are the limitations of this demo?	
Are there objects the demo consistently guesses incorrectly?	
How do you see this demo connected to other devices you use regularly?	

Prepare to informally present your findings to your peers in a board meeting. Think through how you can efficiently demonstrate your device. What do your peers need to see in a demo to quickly grasp the purpose and function of the device you chose? What do they need to know about the strengths and weaknesses of the currently technology?