Raspberry Pi Shopping Guide

About the Raspberry Pi

The Raspberry Pi is a low-cost, yet full-featured, credit card-sized computer designed by the Raspberry Pi Foundation, based in Cambridge, UK. It was originally designed to support computer science education but has become popular with makers and engineers for its relatively low price and ease of use.

The heart of the Raspberry Pi is a system-on-a-chip (SoC), manufactured by Broadcom. The SoC integrates an ARM processor, GPU, and memory. ARM is the most popular architecture for embedded and mobile systems. Working with the Pi will give you insight into how a large and important class of computer systems are designed and programmed.

The standard OS for the Pi is Raspbian Linux, a variant of Debian, one of the most popular Linux distributions. The Pi uses a micro SD card for persistent storage of the OS and your files.

Things You Have to Buy

You will need to purchase the following items:

- A Raspberry Pi 3B or 3B+ Model ($35)
- A power supply for the Raspberry Pi (less than $10)
- A micro SD card with at least 16 GB of space (less than $15)
- An ethernet cable to connect your Pi to a laptop or desktop. If you already have an ethernet cable, you may use it instead of purchasing a new one. If you are purchasing one, I recommend a length less than 6 feet.
- An adaptor to connect an ethernet cable to your laptop if it doesn't have a dedicated ethernet port. Mac people will definitely need this component (if you don't have one already). PC people may or may not need one, depending on your computer. Come see if me if you have any questions.

All of these items are available from Amazon or other online retailers. AdaFruit and the PiHut are vendors that focus specifically on the Raspberry Pi and have a good reputation.

SD Cards, NOOBS, and Raspbian

If you search for Raspberry Pi micro-SD cards, you will come across references to cards that come "pre-loaded with NOOBS." NOOBS ("New Out-of-the-Box System") is a program that can boot your Pi and install the Raspbian OS with minimal effort on your part. This is great, but you need an HDMI monitor or TV and a USB keyboard to interact with NOOBS and perform the setup. We don't have that many monitors, so we can't use it to perform the initial OS install in class. Therefore, you **don't** need to purchase an SD card with NOOBS.

Kits

You can purchase kits that include the Raspberry Pi, power supply, SD card, a case, and a few other peripherals for about $70. I did not have good luck with the kits sold by Canakit 2 years ago (among other issues, the Pi didn't fit in the case). They may have improved over two years, however. If you choose to purchase a kit, read the reviews before committing. PiHut and AdaFruit both offer excellent kits which include all the necessary components except for the ethernet adapter (which you may or may not need).

Things You Might Want to Buy

- A case
- A toolbox, lunchbox, shoebox or other container to store all your equipment
- USB keyboard, mouse, and an HDMI cable if you want to use your Pi with an external monitor or TV outside of class