What Hardware should I Buy?

It all depends on your budget. The most expensive components will be your CPU and GPU, but before we get into pricing and what will suit you, as everyone will have different needs of their PC, lets look at each component and their function within a gaming PC.

As you do research on the web, please note that when deciding on hardware, focus your research on components that have been released in the last 3 years as hardware/peripherals are always improving and becoming more efficient.

Below is a list of the typical components needed when building a gaming PC:

* CPU/Processor
* Motherboard
* Memory (RAM)
* Graphics Processing Unit (GPU)
* Storage- hard disk drive (HDD) &/or solid-state drive (SSD)
* Power supply unit (PSU)
* Cooling system (fans or liquid), Heat Sink
* Case
* Gaming Peripherals

*CPU/Processor*This is the brain of the your PC—it controls what and how fast tasks are completed. It is generally recommended to have at least 4 cores for gaming, while two cores is still acceptable, 4 cores will at least future proof for the immediate future.

*Motherboard*The motherboard can be compared to the nervous system of the human body. The CPU gives instructons but the motherboard is what communicates with all the other major components of the PC - GPU, memory, hard drives, optical drives, and even wireless technologies - so that the CPU's instructions can be completed.

Please note that you should choose a processor and motherboard together as not all CPUs work with every motherboard and vice versa. This is because of compatibility requirments.

*Graphics*There are two types of graphics—integrated and discrete (dedicated). Integrated graphics have gradually improved over time but for gaming performance we will be looking at discrete graphics cards such as Nvidia and AMD, who provide graphics cards for gamers who wish to play graphically demanding games.

A graphics card converts video signals and performs complex calculations which transforms data into the rendered graphics in gaming.

When looking at a GPU, a good measurement of performance is the frame rate. The frame rate tells us how fast an image is refreshed on the screen, as well as overall graphic quality. Frame rate is measured in frames per second (FPS). Typically, the minimum should be 60 fps.

*Memory/RAM*  
RAM, or random access memory, will help your gaming PC access files quickly and run multiple instructions at once without lagging. The more RAM, and the faster RAM, the better experience you’ll have.

If you’ve taken the time and effort to build your own gaming PC, you’ll probably want to install more than the basic 4 GB of RAM found in many pre-assembled PCs. While 8 GB of RAM will serve nicely, top gaming enthusiasts will use as much as 16 GB of RAM in their rigs.

*Operating System (OS)*When you build your own gaming PC, you get to choose the operating system. Think about what programs and applications you’ll run (in addition to games) and make sure your chosen OS will work well with everything. Popular OS choices include Windows® 10, Linux\*, and Mac\* OS, but there are other options as well. Windows® 10 just recently pushed and update that includes important gaming refinements.

*Storage: Solid-State Drive (SSD) or Hard Disk Drive (HDD)*Your next decision is SSD or HDD, or both? Many believe that a high-performing gaming PC demands an SSD for hyper-fast game loading times and almost instant responsiveness.

You could try for the best of both worlds and use a less-expensive SSD in conjunction with a hard drive. You’ll get fast loading times, cost efficiency, and storage capacity. To help select the right model (or models), make sure you check how much storage you’ll need from the games you want to play, and think about how many other things—games, files, music, videos—you could store here as well.

*Power Supply Unit (PSU)*Veteran gamers will tell you—don’t underestimate the importance of the power supply! It’s not a good idea to try to save money in this area. The quality of your PSU matters. A cheap PSU could literally fry your hardware, especially if it can’t handle the cooling load you’ll put on it.

*Cooling*Any high-end PC or gaming rig is going to generate a lot of heat. Typically, graphics cards and processors ship with fans already built in to dissipate some of the heat. Also, PC cases now often come with intake and exhaust fans already installed. This is usually enough for a regular PC, but if you’re interested in overclocking your CPU and taking your game playing up a notch, you will need a cooling system.

There are two primary options—air or liquid. An air-cooling system is probably more economical and easier for novices to incorporate into a build, while liquid-cooling systems are expensive, but provide better results. However, these systems may not be easy to install. Also, consider how much space you have in your case for fans or tubes. Once again, your CPU choice will drive a lot of this decision making.

*Case*Choosing a case is also an important decision as they come in a variety of styles, sizes, and configurations so you can really personalize your build. If you make a sound investment in your case, it should last you through several builds or upgrades.

There are many things to keep in mind as you choose your case. First, consider your components—will they all fit into the case? Is there any additional room for more drives or upgrades? Do you want to include a cooling system or extra fans?

What about cable management? Access to your drives? You’ll need to consider these things as you pick out your next PC case, and determine if it’s compatible with your motherboard.

Gaming Peripherals  
You’ll want a special mouse and keyboard designed for the rigors of gaming to fully complete your system. Gaming mice should be comfortable and ergonomic, and withstand hours of use. Most have customizable buttons and offer extra precision and accuracy.

Gaming keyboards are a must for most gamers, especially if you enjoy first-person shooters (FPS), strategy games, or Massively Multiplayer Online games (MMOs). Gaming keyboards include features like mechanical keys, extra keys for programming macros, and even colorful backlit illumination.

Putting It All Together  
Once you have all the components for your gaming PC, it’s time to install them. How you install these parts, and in what order, is up to you. If you’ve spent enough time up front researching your components and their compatibility, it should be easy to assemble your gaming PC. Take your time, always follow manufacturers’ instructions, be careful as this is real electricity flowing here, and enjoy the process.