Power Supplies

In order to get our computer to work, let's give it some power. Computers have a power supply that converts electricity from your wall to something usable. There are two types of electricity DC or direct current which flows in one direction and AC or alternating current which changes directions constantly. Our computers use DC voltage so we have to have a way to convert the AC voltage from our power company to something we can use. That's what our power supply does. It converts the A C we get from the wall into low voltage DC power that we can use and transmit throughout our computer. So let's talk about power supplies, I actually have one right here. Lemme show you how one looks like, take it out right here. So, most power supply units have a fan which is right in here, they also have voltage information which is normally listed underneath or on the side. And cables like this one to power your motherboard and a power cable. Have you ever plugged one of your devices into the wall outlet and fried your device? If you haven't, you're really lucky, after completing this lesson, hopefully you'll know how to avoid that situation. To understand electricity, let's use the example of water pipes. Our tanks have a faucet that's connected to a pressurized water tank. When we turn on the faucet, water comes out. This is sort of how electricity works, when we plug in appliance into a wall outlet and turn it on, a flow electricity comes out. If we added more pressure to our water tank, would more water come out of it? The higher the pressure, the more water there will be. When it comes to electricity, we refer to the pressure as voltage. So, when I was on vacation to my surprise, when I plugged in the 120 volt appliance into a 220 volt outlet, the power came bursting through and fried my charger. If it was the other way around and a 220 volt appliance was plugged into 120 volt outlet, I wouldn't have seen the same outcome. I'll still be able to get electricity, but slowly. This would be similar to if a water tank was only half pressurized it will draw water but slowly, in some cases though, this can deteriorate the performance of the device and cause damage in the long-term. As a general rule, be sure to use the proper voltage for your electronics. We refer to the amount of electricity coming out as current or amperage and it's measured in amps. We can think of amps as pulling electricity as opposed to voltage, which pushes electricity. Amps will pull as much electricity needed, but voltage will just give you everything. Look on the back of one of your device charges. You might see something like1 or 2.1 A, charging a device with 2.1 amps will actually charge a device faster because it's able to put more current from a 2.1 amp than a 1 amp charger. Finally, the other important part of the electricity that you'll need to know is the wattage. Wattage is the amount of volts and amps that the device needs. If your power supply has too low the wattage, you won't be able to power your computer, so make sure you have enough. This doesn't mean that if you have a large power supply you will overpower your computer. Power supplies just give you the amount that your system needs. It's best to err on the side of large power supplies, you can power most basic desktops with a 500 watt power supply. But if you're doing something more demanding on your computer like playing a high resolution video game or doing a lot of video production and rendering, you will likely need a bigger power supply for your computer. On the other hand, if all you're doing is just browsing the web, the power supply that comes with your computer should be fine. All kinds of issues are caused by a bad power supply. Sometimes the computer doesn't even turn on at all, since power supplies can fail for lots of reasons like burnouts, power surges or even lightning

strikes. Knowing how to diagnose power issues and replace a failed power supply is a skill every IT support specialist should have in their toolbox.