Batteries and Charging Systems

Sometimes instead of being plugged into a power outlet all the time, we want to take our technology with us. Mobile technology uses rechargeable batteries to carry power with the device wherever we take it. Rechargeable devices might have an external charger for removable batteries, or might have a cradle stand or wireless charger. Look at this phone, we can top up the battery just by laying it on this wireless inductive charging pad. Isn't that cool? It's also pretty clever technology. Rechargeable batteries have a limited lifespan, which is measured in charge cycles. A charge cycle is one full charge and discharge of a battery. When a battery is reaching the end of its lifespan, it may take longer to charge and might not hold as much charge as when it was new. For some devices, you compare the current cycle count of your battery with the rate at cycle count of that battery type, to see how much more life to expect out of it. You need an external power source to add power to a battery. This could come from a wall outlet, another battery, or even a solar panel. You also need a charging circuit that manages the power transfer from the external power source to the rechargeable battery. This circuit works a lot like a power supply unit or PSU that we looked at earlier. It makes sure the input power is converted to the correct output power. Instead of using a large PSU, rechargeable devices use more portable power adapters, power supplies or chargers. A portable power supply powers the device while also charging the battery. This might sound obvious, but you need to make sure that you use the right charger for the right device. Mismatching chargers to devices can damage the battery, the device and the charger. A lot of chargers and power supplies use USB connectors, but you'll see a wide variety of charging connectors. Rechargeable batteries can be damaged by very cold or very hot environments. Don't charge or discharge rechargeable batteries unless they're within their safe operating temperature range. Its not just that a damaged rechargeable battery might not perform well, it can also be very dangerous. Batteries can swell, rupture, and sometimes even catch fire. Before working with a damaged battery, you should know how to safely handle it. When a battery reaches the end of its life, you'll need to replace it. Some devices will slow themselves down when a battery is getting old to make the battery last longer. If your device is running much slower than usual or shutting down unexpectedly, one thing to check is the battery life. Some devices have batteries that are designed to be replaced by the end-user. Other devices have batteries that are very difficult to replace, like small laptops and mobile devices. As an IT support specialist, you might receive special training on how to replace batteries and devices that you support. Or you might be the person sending the device out for battery replacement and then returning the device to the end-user. IT support specialist often have to troubleshoot battery life and device charging. The first step is to make sure the charger, the battery and the device are all designed to work with each other. We'll talk about sending out devices for repair and troubleshooting skills in future videos, so stay tuned. For iOS and Android, there are also some things that you could do to make the battery last as long as possible. It's a good idea for you to be familiar with these things so that you can help educate end-users on the best ways to get the most out of their mobile devices.

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