

The Greening of Technology

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Introduction



We all know how important it is not to be wasteful. Everybody wants to take steps to protect our **environment**. You probably recycle items such as glass jars and cardboard boxes and try not to waste paper. Perhaps you ride your bike to school rather than get a ride in a car. There are also ways we can save energy and reduce waste when using computers and other electronic equipment.

Maybe you've heard people use the word "green" when talking about things that are designed to protect our environment. "Green" computer equipment is designed with three things in mind: reducing the amount of power used, being friendly to our environment, and lessening any risks to our health. In this article, you will learn more about the importance of "green" technology.

The ENERGY STAR

The U.S. government has a special agency devoted to protecting our environment. It is the **Environmental Protection Agency (EPA)**. According to the EPA, about 40 to 50 percent of computer users leave their

computers running 24 hours a day, 7 days a week. Because of this, the EPA has encouraged manufacturers to design equipment that conserves energy.

These devices contain components that use low amounts of energy. They also are designed to go into "sleep" mode when they are not being used. They then use only a fraction of their normal electricity. For example, a computer in "sleep" mode uses only about 30 percent as much electricity as a computer in normal "on" mode. Devices that meet these EPA requirements can use the EPA's ENERGY STAR label.



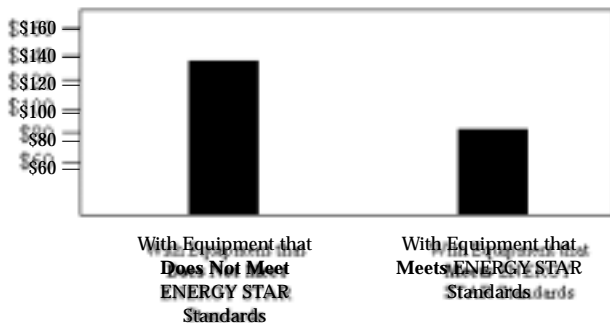
Energy-efficient equipment can use the EPA's ENERGY STAR label.

There's another advantage to "sleep" mode. Because the computer is using less electricity, it also generates less heat. This means that the equipment will last longer.

Imagine that your home has older computer equipment that does not meet

ENERGY STAR standards. Let's say that you then buy all new ENERGY STAR equipment. The amount of energy you would save in three years would be enough to light your entire home for a year! Think of the energy savings if everybody used ENERGY STAR equipment.

The ENERGY STAR is not just for computer equipment. It is available for all kinds of appliances such as dishwashers, televisions, and hot-water heaters. Entire homes can receive the ENERGY STAR if they meet specific requirements. Watch for the ENERGY STAR whenever you go shopping.



Yearly Cost of Electricity for a Home Office

Waste Not and Create a Better World

In addition to using equipment that meets ENERGY STAR standards, there are many things you can do to reduce waste and conserve energy. Here are a few ideas:

- Stop and think before clicking that Print button. Ask yourself, “Do I really need this on paper?” Try to do as much work as possible on-screen. Perhaps you can submit your papers to your teachers electronically. Then you won't have to print them. Not only does this save paper, it also saves ink.
- When you no longer need a piece of paper, do not throw it in the trash. Instead, place it in a box for recycling. Or maybe you can use the back for hand-written notes.

- Recycle any cardboard boxes that equipment and supplies come in. Or better yet, use them to store something else.
- If you have an inkjet printer, you may want to see if you can refill the ink cartridges yourself. Refill kits are available. Then the cartridges are not wasted.
- If you have an inkjet printer, you can purchase refilled ink cartridges. If you have a laser printer, you can purchase refilled toner cartridges.
- Many manufacturers have “take-back” programs where you can mail your empty printer cartridges back to them. Hewlett-Packard, for example, allows you to mail back empty cartridges, free of charge. The company will then see that the cartridges are properly recycled.

Getting Rid of Old Computer Equipment

Sometimes we have computer equipment that still works fine, but is out-of-date. It may not be able to run the new applications we want to use. Or it may not have enough storage space or memory. So, we buy a new machine. We may want to use the old machine as a backup, in case our new machine is temporarily out-of-order. Or we may choose to get rid of the old machine. Rather than discarding the old machine, try to give it to someone who can use it. Some schools and organizations will take older machines.

Let's say that no one wants your computer—it is simply too old. Do not put the computer in the trash to be taken to a landfill. Some computer components are hazardous to the environment. These components need to be treated in special ways.



There are companies that specialize in removing electronic components from old equipment and reusing them. If a particular component

cannot be reused, any metals are removed from it. These metals are then sent for recycling. In addition, any dangerous parts are removed and disposed of properly.

Old monitors are especially difficult to dispose of properly. Computer monitors (and television sets) have traditionally contained **cathode ray tubes (CRTs)**. Each CRT monitor contains about five pounds of lead. This is one reason these monitors are so large and heavy. If lead finds its way into a person's bloodstream, it can be harmful to the person's health. Be especially careful to properly dispose of CRT monitors. Never put them out with the trash to be taken to the landfill. You may be able to find a computer equipment recycler near you by looking in your telephone book or on the Internet. Then make arrangements to take the monitor to this company.

Computer manufacturers are working hard to reduce the amount of lead in their products. The newer flat-screen LCD monitors are becoming more commonplace. **LCD (liquid crystal display) monitors** have many advantages. They take up less room. They use only about half as much electricity. In addition, the EPA reports that LCD monitors have 25 times less lead than CRT monitors. This means they create much less of a problem if it is necessary to dispose of them.



CRT monitors contain 25 times as much lead as LCD monitors.

Planned Obsolescence

What happens when you see a fancy new cell phone or video game machine advertised? Can it do more than your current one? It is smaller or does it come in great new colors? Do you wish you had one? Some people say that manufacturers build “planned obsolescence” into computers and other electronic devices. When a device is obsolete, it is seen as being out-of-date. It may no longer seem fashionable. Part of the problem is that improvements in electronic devices occur at such a rapid pace. People may be happy to use a 10-year-old refrigerator, but a 10-year-old cell phone? No way! You couldn't even find one.



New, improved electronic devices come out every day.

The problem is that when people buy new electronic devices while their old ones are still working, they are creating more waste. The next time you are thinking about buying the latest gizmo—stop and think. Do I really need it? Is buying it good for the environment? If you are not certain the answer is “yes,” wait a few days. Think over your purchase before buying something you may enjoy for only a short while.



Review Questions

1. What is the ENERGY STAR label? What determines whether a computer or other device can get this label?
2. Check the computer equipment in your computer lab at school or at home. Does it have the ENERGY STAR? Do the computer and monitor go into “sleep” mode if you don’t use them for a while? If so, what do you have to do to get them out of “sleep” mode?
3. List three ways you can reduce waste when using a computer.
4. Why is disposing of CRT monitors a problem?



What Do You Think?

1. Can you think of any uses for old computer equipment that were not discussed in this article?
2. Think up an imaginary company that uses computer equipment. Imagine that you are the owner of this company. What steps would you take to make your computers environmentally-friendly? What might you do to reduce waste? Give specific examples.
3. Do you think manufacturers deliberately create products that will become obsolete fairly soon? If so, what are some of the things you can do to reduce this kind of waste?

Glossary

cathode ray tube (CRT) monitor A large, heavy monitor that is similar to a traditional television set. The monitor contains a glass vacuum tube. Images are created when an electron beam strikes the surface of the tube.

environment All of the things and conditions that surround us.

Environmental Protection Agency (EPA) The agency of the United States government that is devoted to protecting our environment.

liquid crystal display (LCD) monitor A monitor that is relatively flat. An LCD monitor creates an image by shining light through a combination of liquid crystals and filtered glass.