

How to Make an Ethernet Cable

Most young people today have grown up using the Internet for school and fun—but they don't always understand how it works. Here's an activity to get your teenager thinking about how the tool she uses every day for communication, homework assignments, or entertainment operates. By assembling an Ethernet cable of her own, your child can learn more about electronics and Internet technology in a hands-on way.



What You Need:

- Ethernet Category 5 or 6 cable, available at any electronics store
- RJ-45 Ethernet cable connectors, available at any electronics store
- Sharp scissors or razor blades
- Cable crimper, available at any electronics or hardware store
- Optional: Cable tester

What You Do:

1. Look at one end of the cable. Notice how the outer layer, or cable sheath, surrounds several wires inside. Use your razor blade or scissors to carefully strip off about 1" of the cable sheath from the end of the cable. *Be sure not to cut or nick any of the wires!* Otherwise, you'll need to start over.
2. Separate and straighten out the wires so they are no longer twisted.
3. Note how the wires are each different colors. The order you arrange them in will determine what the cable can do. For this project, we will be making "straight-through" cables to connect computers through a hub, or to connect a computer to your Internet connection.
4. Lay the wires flat in this order:
 1. Green/White
 2. Solid Green
 3. Orange/White
 4. Solid Blue
 5. Blue/White
 6. Orange
 7. Red/White
 8. Red
5. Make sure the wires lay flat and parallel, with no spaces between them. Trim them evenly, leaving only half an inch (0.5") sticking out from the uncut cable sheath. Check once more that the color order is still correct.
6. Hold the RJ-45 connector with the clip facing down and away from you. Push the wires into the plug. Check that the wires are flat and even at the front of the plug, so that they will make a good electrical connection.
7. Use the crimping tool to squeeze the plug, so the wires are held firmly in place.
8. Repeat the process with the other side of the cable.
9. Test the connections using a cable tester, or by plugging it in to make sure it works.

When you're done, you can use your new cable to surf the Internet!

What's Going On?

Once you type an email or send a search query, the information gets translated into electric pulses, or signals. These pulses go over the wires contained within the Ethernet cable. The cable connects your computer to the Internet connection in your home, usually to a cable or DSL modem.

After it leaves your house, the information travels on the phone or cable companies' networks to their computer servers. Their servers then send the information on fiber-optic cables to other computers on the Internet to help you send your email, search the net, or play online games.

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