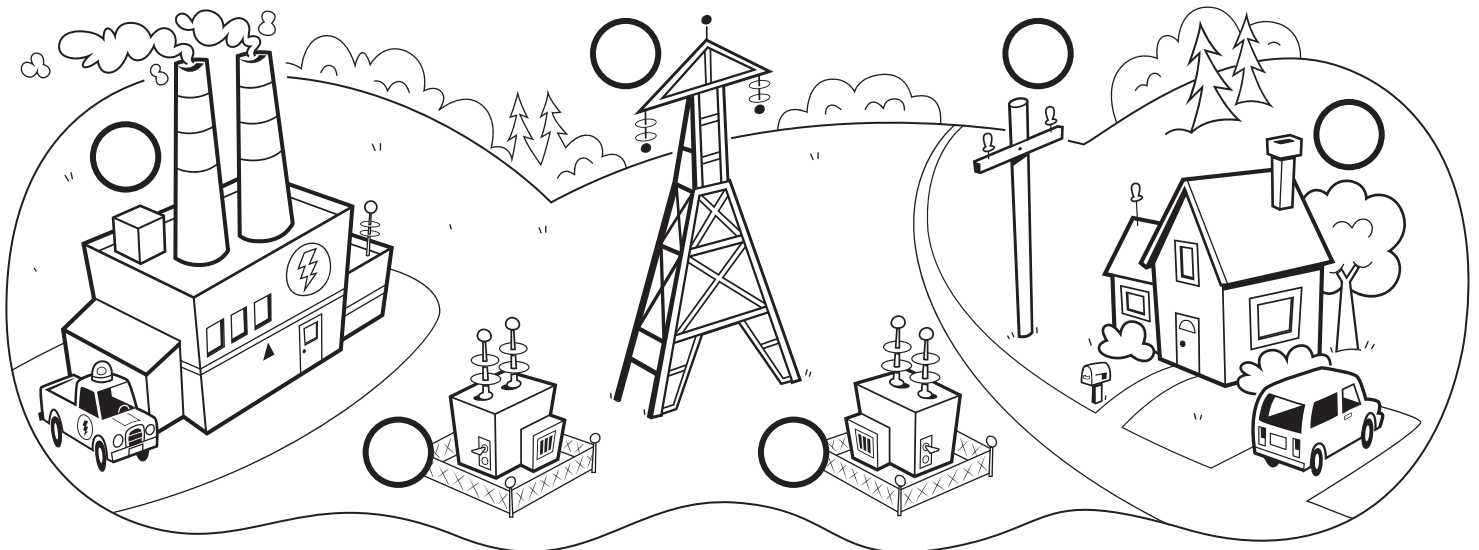


# Mapping Electricity!

A power outage is when the electricity goes out and things like your TV, refrigerator and lights don't work. There are steps we can take to prepare for a power outage and stay safe during and after one. But what makes the power go on and off in the first place?

**Part 1:** All over the world, there are systems called **electrical grids** that bring electricity from power plants to homes and other buildings. Electrical grids can be complicated, but they all include six basic parts, shown in the pictures below. Read this description of the pictures and write the correct number in the space for each part of this electrical grid.

1. The process starts at a **generator**, which is where electricity is made. Generators can be powered by fuel or steam or fast-moving water. They can be windmills powered by the wind, or solar panels powered by the sun!
2. The generator sends the electric current to a **transformer**, which increases the strength of the current so it can travel over the grid.
3. Next, the electric current moves toward cities and towns by traveling over giant towers called **transmitters**.
4. When it gets close to a city or town, the electric current travels through another **transformer**. This one reduces the strength of the current so it's safe for people to use.
5. When it gets near buildings, the electric current is carried by **distributors**. These are the poles you see on streets. In some places the electric current travels underground.
6. Finally, the electricity comes to what electrical engineers call the **end point**, or the place where people can use it—including homes, schools and local businesses. End points can also be power stations for charging electrical cars!



Now, draw **power lines** and arrows connecting the parts of the grid, all the way to the home. You just made an electrical grid!

**Part 2:** All parts of the grid must work for the power to stay on. Imagine there is a power outage in your grid. Read the list of possible issues below. On the blank line next to each statement, write the number for the part of the grid where the problem occurred.

- \_\_\_ A. A squirrel ate through wires in the local transformer.
- \_\_\_ B. A storm caused a tree to crash into a pole carrying power to homes.
- \_\_\_ C. There was a generator malfunction at the power plant.
- \_\_\_ D. The power company must replace wires at the transmitter towers.

**Part 3:** Now draw your own electrical grid on the back of this sheet. Be sure to include all six parts listed above. Your end point should be a picture of your favorite electronic item, such as a TV or computer. Draw arrows and lines showing how the electricity travels through your grid to power your “end point” device or item.

**A Message to Grown-ups:** Visit [redcross.org/poweroutage](https://redcross.org/poweroutage) and learn steps you can take before, during and after a power outage to help keep your household safe.