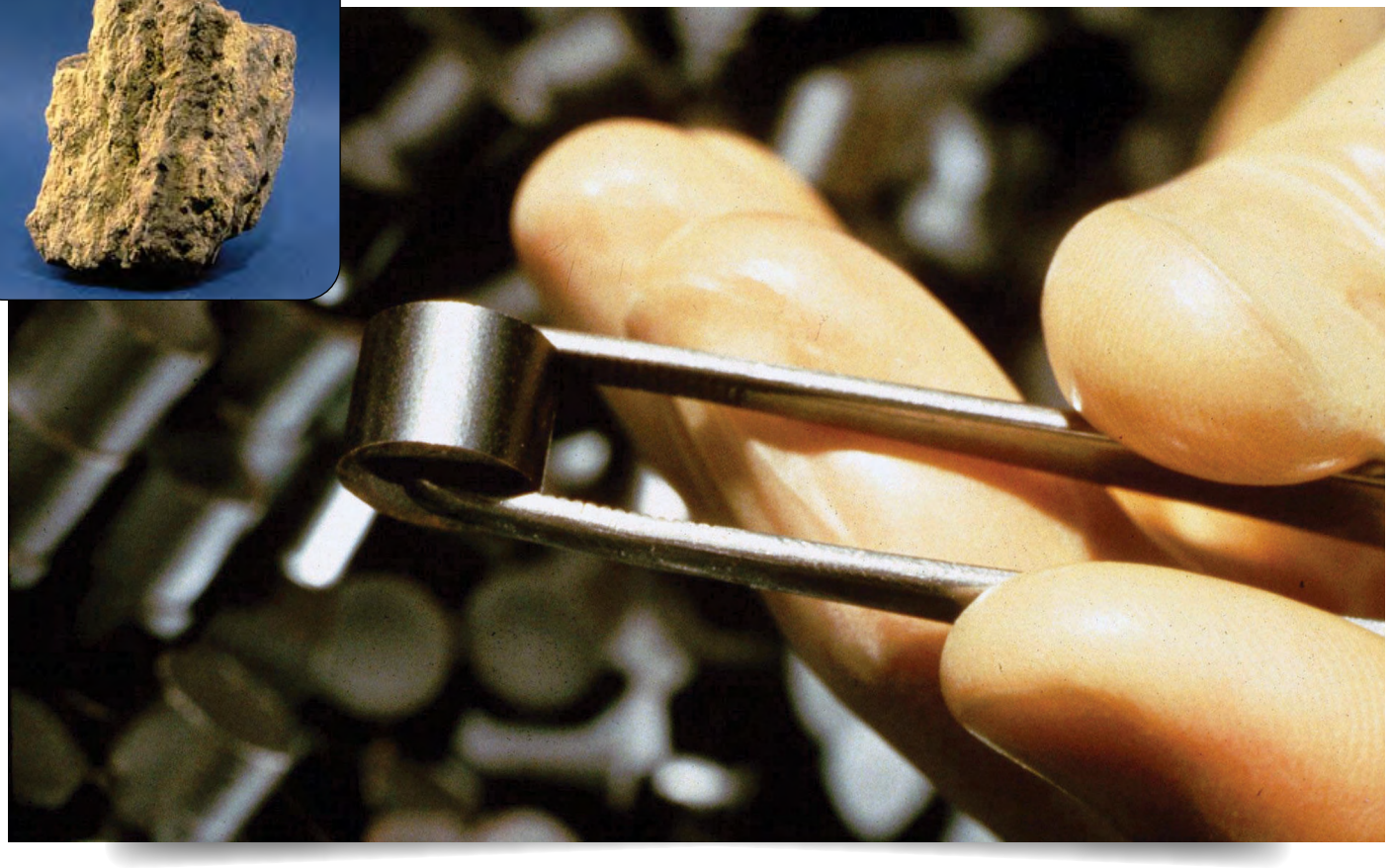
Uranium

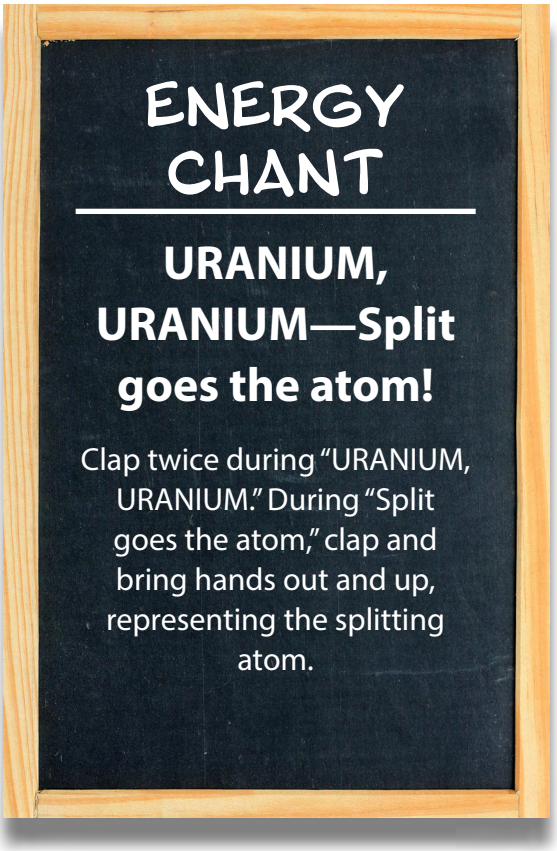
Uranium ore



Uranium is made into fuel pellets, which are used in a nuclear reactor.

Uranium is a mineral buried in the ground. It has energy in it. Uranium is nonrenewable.

Uranium
TEACHER



Uranium is a mineral found in rocks in the ground. Uranium is **nonrenewable**. We cannot make more. There is plenty of uranium, though. We split uranium atoms to get energy.

Everything is made of atoms. Stars, trees, horses, air—all are made of atoms. **Atoms** are tiny, tiny particles. Every atom is made of even smaller particles. In the center of an atom is the **nucleus**. It has **protons** and **neutrons** in it. Moving around the nucleus are **electrons**.

The number of protons tells us what kind of atom it is. So far, 118 different atoms have been found. You have not heard of most of them. There are some you do know. Hydrogen is a gas—every atom of hydrogen has one proton. Oxygen has eight protons, tin has 50, and uranium has 92.

There is energy stored in the nucleus of an atom. It is called **nuclear energy**. It holds the atom together. To use this energy, we have to set it free. There are two ways to free the energy in atoms.

The first way is to combine atoms to make a new atom. This is called **fusion**. The energy from the sun is from fusion. Inside the sun, hydrogen atoms combine to make helium. Helium atoms do not need as much energy to hold them together. The extra energy is released as solar energy.

Another way to free the energy in atoms is to split them apart. We can split one atom into two smaller atoms. This is called **fission**. The two smaller atoms do not need all the energy that held the larger atom together. The extra energy is released as heat and **radiation**.

Power plants use fission to make electricity. Atoms of uranium are split into two smaller atoms. The extra energy is released as heat. This heat is used to make electricity.

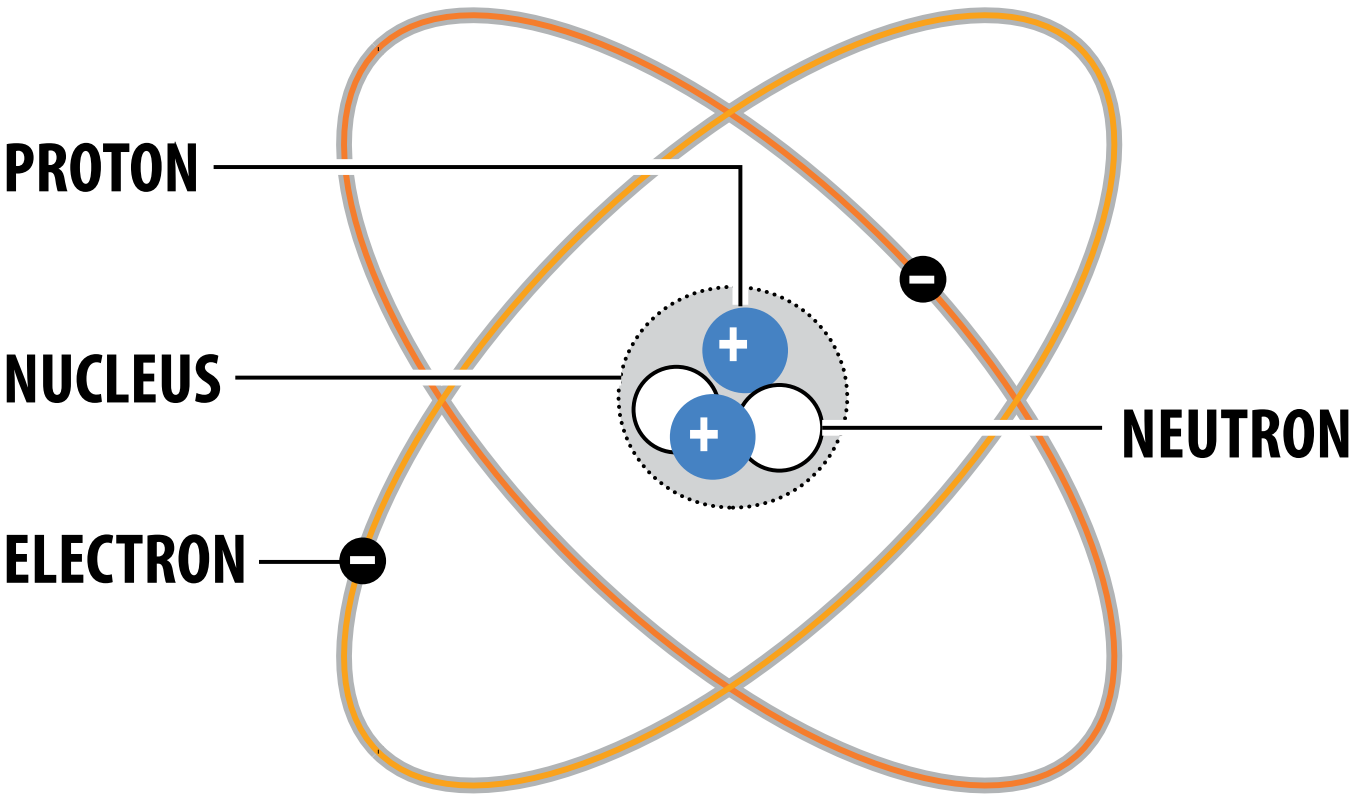
Nuclear power is clean since no fuel is burned to pollute the air. And uranium is a cheap fuel. Right now, about 18 percent of our electricity comes from splitting atoms of uranium in nuclear power plants.

During fission, heat is not the only energy that is released. Rays of energy, like x-rays, are also given off. These rays of energy, called radiation, can be dangerous in large amounts but are harmless in small amounts. Radiation is everywhere. It comes from the sun, older TV sets, and even food.

Some radiation is helpful. When we go to the doctor or dentist and get pictures of our bones or teeth, they use x-rays, which is a form of radiation. Some medicine has radiation in it that helps the doctors to look at organs inside our bodies. Doctors are very careful that we do not get too much radiation. Large amounts of radiation can kill our cells and poison our food and water. Power plants are very careful to keep radiation from escaping. The power plants in the United States are very safe.

The fuel from nuclear power plants produces radiation for a long time. After the fuel is used, it is still **radioactive**—it gives off radiation. It cannot be put into a landfill. It must be carefully stored away from people. Some people do not think we should use nuclear energy. They think the radiation is too dangerous. Other people think nuclear energy is a clean, safe way to make electricity.

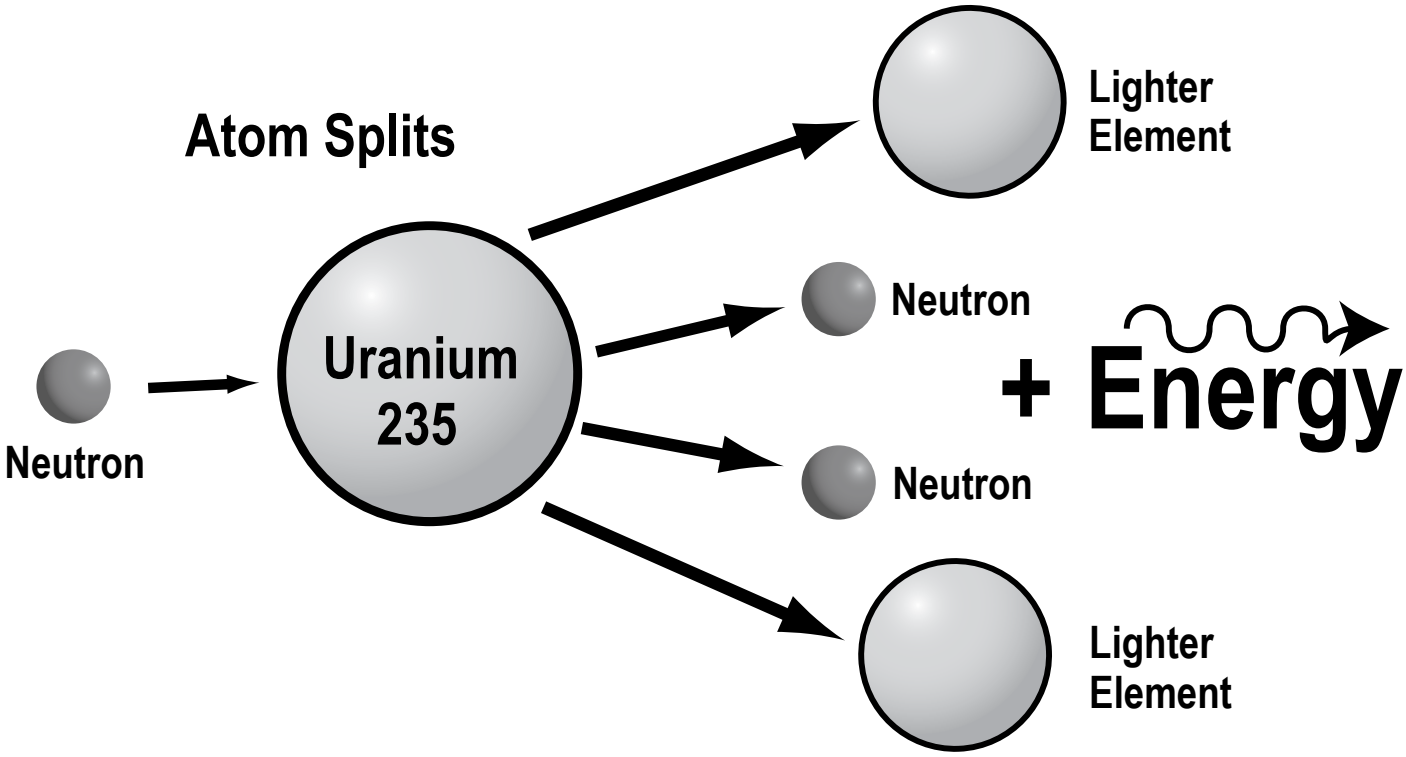
Atom



An atom is made of tiny particles.

All matter is made of atoms. There are over 100 different types of atoms.

Fission



Splitting atoms is called fission.

We can split uranium atoms to get heat energy.

Diablo Canyon Nuclear Power Plant in California.

A nuclear power plant splits uranium atoms to make electricity.

Used nuclear fuel is often stored in large used fuel casks at a nuclear power plant.

Used nuclear fuel can be dangerous if it is not stored carefully.