

Energy backgrounder

We use energy throughout our daily lives, in many ways. The food we eat gives us energy to make our bodies grow, and plants get their energy from the sun so that they can grow. Energy heats our homes and classrooms and powers our lights. It cooks our food on the stove and keeps it cold in the refrigerator. It makes cars and buses move and powers our computers and televisions.

We cannot always see energy or touch it, but energy is all around us. Energy does things for us every day – at home, at school and in the community. Energy is defined as the ability to do work, to make things happen, to move things and to cause changes. Energy cannot be made or destroyed; it can only be change form.

It's important to distinguish between energy forms and energy sources. For example, wind is a source of energy in a mechanical (moving) form. Natural gas is an energy source containing chemical energy (a form) that is released when burned. Water is an energy source that can produce electrical energy. Magma, an energy source found deep inside the Earth contains thermal energy (an energy form). Refer to the definitions below for more information about different forms of energy.

Chemical energy is the energy that is stored in the bonds of molecules. Our bodies use the chemical energy from food and cars get it from gasoline.

Elastic energy is stored in objects that can be stretched (pulled apart) or compressed (pushed together). A stretched rubber band and a bouncing ball have elastic energy.

Electrical energy is produced by the flow of an electric charge. It has two forms: static and current. Electrical energy is common in nature. Our nervous system and brain run on electrical currents. Lightning is a spectacular display of electrical energy. It is used by things that plug in and turn on.

Gravitational energy is energy stored in an object due to its height and caused by the pull of gravity. It causes things to fall to Earth. The energy in falling water is used to create hydroelectric power.

Light energy is the energy produced by light and enables us to see things. Light energy is in the same group of energies that includes radio waves, television signals, radar, microwaves, X-rays, infrared waves and ultraviolet waves. A common source of this energy is the sun.

Magnetic energy is the energy stored in a magnetic field and causes some metals to attract or repel each other. Magnets, compasses and even the Earth have magnetic energy.

Kinetic energy is the energy of motion, such as a bouncing ball or moving car.

Nuclear energy is the energy in the nucleus of an atom that holds it together. Releasing this energy creates nuclear reactions. It is sometimes known as atomic energy.

Sound energy is the energy that we can hear. It is caused by the vibration of air or objects at frequencies that we can hear.

Thermal or heat energy is caused by the vibration and movement of atoms and molecules and produces heat. Thermal energy keeps us warm and prepares our food.

