

Energy always exists. It cannot be destroyed or created, but it can change form. Energy that changes form is **transformed**. The **law of conservation of energy** is the law in physics that explains energy transformation: Energy cannot be created or destroyed, only transformed.

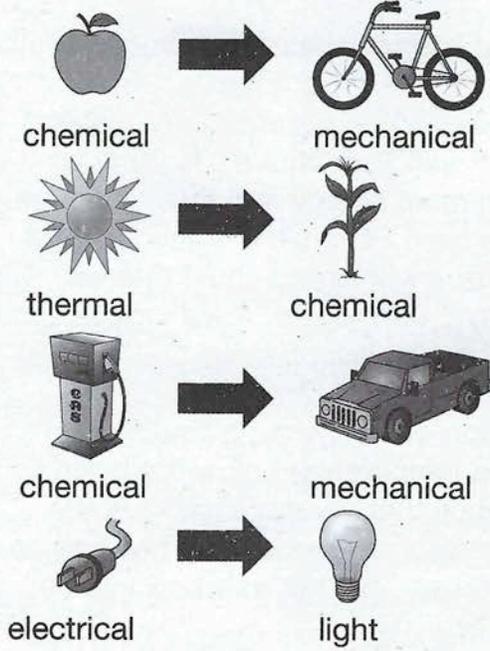
Sound energy can transform into mechanical energy, for example, if the noise is pitched high enough to break glass. Thermal energy can change into chemical energy when a cake is baked. Chemical energy is changed into mechanical energy when food is eaten and gives power to muscles.

Energy does not stay in one place. It is **transferred** from one object to another by work. When a bowling ball hits a pin, the energy is transferred from the ball to the pin in the form of mechanical and sound energy.

Sometimes friction reduces energy. **Friction** is the force that resists the motion of one object against another. A young bike rider can use his or her feet to slow the bike by dragging the feet along the ground, creating friction

that resists the bike's movement. Rubbing two sticks together creates friction. Friction itself produces heat. If two sticks are rubbed together long enough, the friction can create a spark, which can become a fire.

The heavier the object, the more friction it has. The harder two objects are pressed together, the more friction they have. Finally, the rougher the surface of the objects, the more friction they have.



Exercise

1. What is the difference between transformation of energy and transfer of energy? Give an example of each. _____

2. How can heat energy, in an oven, for example, be both good and bad? _____

3. Does a heavier object or a lighter object have more friction? _____
