

Energy Conceptions & Misconceptions

True or False?

Energy is found only in living objects.

Energy is a force.

Energy is associated only with movement.

Energy causes things to happen.

Energy is a fuel.

Energy is a product of an activity.

Energy is a substance or fluid.

In strict scientific views, all these statements are false. Following are explanations of why these energy descriptions are “wrong”:

Energy is found only in living objects.

This statement is not correct because everything has energy. The composition of an object or its placement determines what kind of energy it has (e.g., chemical, thermal, gravitational). Living things are unique in that they have the natural capacity to convert energy to another form from the food they consume.

Energy is a force.

A force is a push or a pull. Energy is needed to create the force, but it is not the force. A force, through movement, changes the state of energy in an object (e.g., from potential to kinetic energy).

Energy is associated only with movement.

Non-moving objects have potential energy (sometimes called stored energy).

Energy causes things to happen.

It is acceptable to say energy is needed to lift an object or move things, but other conditions (such as force) are needed as well.

Energy is a fuel.

Fuel is a source of energy, but the fuel itself is not energy. Fuel is a resource, such as oil, coal, or foods that we eat. Fuel sources have potential energy in the chemical bonds that make up the substance.

Energy is a substance or fluid.

Energy is a state; it is not matter (i.e., it does not contain molecules). For example, steam, liquid water, and ice are all the same substance (contain the same molecular structure), but because of their different states of energy, they appear different.

Energy is a product of an activity.

Energy is transferred as result of an activity such as electricity generation or eating food. Energy is not created.

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The Wisconsin K-12 Energy Education Program is supported through funding from



Wisconsin K-12 Energy Education Program (KEEP)
College of Natural Resources
University of Wisconsin - Stevens Point

