

Read About Energy Transfer

DEFINITION OF ENERGY TRANSFER

Energy is the ability to do work, or in more simple terms: energy makes things happen. You use energy to ride your bike, play video games, bake cookies, and drive to school. Energy is exciting! Energy can be transferred from one object to another, and energy can be transferred into different forms, such as light, sound, and heat.

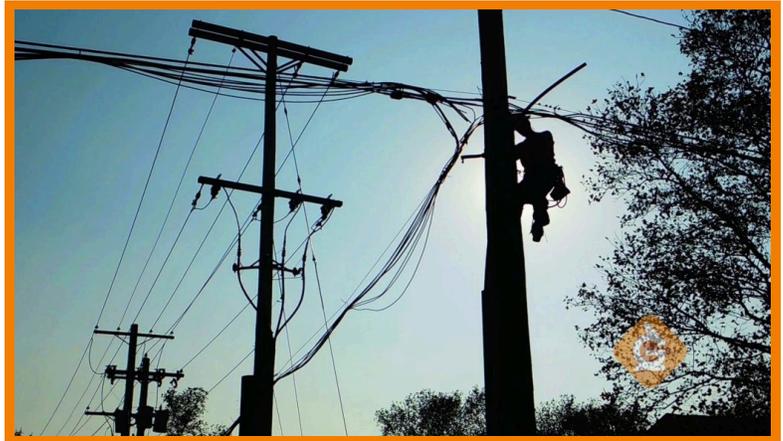
To better understand how energy transfer works...

LET'S BREAK IT DOWN!

What is energy?

Energy is the ability to do work. There are many different kinds of energy, such as light, sound, and heat.

We need energy for our homes to power lights, refrigerators, air conditioners, and computers. We use energy when we drive cars or pedal a bike. We power our devices with energy stored in batteries. Even sleeping requires energy!



Energy moves and changes form.

Energy transfer takes place when energy moves from one place to another. Energy can move from one object to another, like when the energy from your moving foot is transferred to a soccer ball, or energy can change from one form to another.



When energy in a battery is used to power an electronic device, chemical energy is transformed into electrical energy, which moves along wires.

Three more ways energy can be transferred are through light, sound, and heat.

Energy can be transferred as light.

Light energy is the only form of energy we can see. Light from the sun helps plants grow and makes food for us to enjoy. The sun's energy also powers solar cells, which can be used to create electricity.

Light bulbs can also transfer energy, just like in the video when the light bulb's energy powered the singing



fish. The light energy moves through space until it encounters a solar cell. The solar cell converts it to electrical energy, which powers the singing fish.

Energy can be transferred as sound.

Have you ever felt sound? Loud concerts or even marching bands can sometimes produce enough energy that you can feel the vibrations in your body.

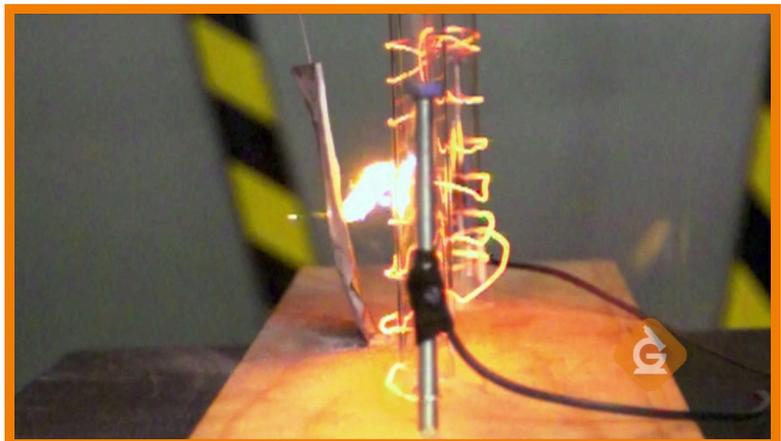
Sound energy is transferred when a sound wave travels from its source, like a drum, to another object. If the sound is loud enough, the waves will create very intense vibrations that you can feel in your chest.



Energy can be transferred as heat.

When you sit by a campfire, you can feel the heat warm your body. The heat from the burning wood is transferred to your marshmallow, causing it to get soft and gooey. Perfect for your s'mores!

Heat can move from warm objects to cool objects, just like in the video when the heat from the wires made the paper ignite.



ENERGY TRANSFER EXAMPLES



Humans and other animals use sound energy to communicate. When you speak, you create sound waves that travel through the air. When the sound wave reaches the ears of someone nearby, their brain is able to translate the sound waves into words.



The sun is not the only source of light. Light bulbs and candles also produce light, and so do some living things such as fireflies. Light energy powers most things in nature because plants use light energy to grow, and then most animals get their energy from eating plants.



The sun's energy can be transferred to make s'mores. The DIY activity with Zoe shows you how to make your own s'more maker without electricity. It relies on energy transfer from the sun. Yum.

ENERGY TRANSFER VOCABULARY

Energy	It makes things happen! (Or more formally: the ability to do work)
Energy Transfer	Energy being moved from place to place.
Generator	Changes energy from one form to another.
Batteries	Store energy and change it from one form to another.
Solar Cell	Converts energy of sunlight into electrical energy.
Motion Energy	The energy something has due to movement.

ENERGY TRANSFER DISCUSSION QUESTIONS

At the beginning of the video, where did Bert's energy go?

Bert's energy was transferred to several different devices that run on electricity such as Izzy's popcorn maker.

How does Dr. Jeff's mom transfer energy to Bert?

Dr. Jeff's mom uses motion energy to pedal a bike, which spins a wheel that is attached to a generator. The generator changes the motion energy into electrical energy, which flows through wires to Bert. Bert then stores energy in his batteries to use later.

Why is the name "generator" a misnomer (a non-appropriate name)?

Generators don't actually generate energy. Instead, they convert one type of energy to another. In the video you can see a generator convert motion energy into electrical energy when Dr. Jeff's mom pedals the bike.

Can you think of a device that converts electrical energy into heat? How about into light? Sound?

A toaster is an example of a device that converts electrical energy into heat energy. A lamp converts electrical energy into light energy and a boom box converts electrical energy into sound energy.

What are some ways electrical energy can be generated at a power plant?

Power plants might generate electricity by using the power of moving water to spin a generator or by burning coal to produce steam, which also spins a generator.

Do power plants "produce" electricity? Why or why not?

Power plants do not produce energy, they only convert energy from one form to another. For example they can convert the energy from burning coal (chemical energy) into electricity (electrical energy).
