

The background is a dark blue gradient. On the left side, there are white circuit-like lines and small circles, resembling a stylized tree or a network diagram. In the center-right, there are several faint, concentric white circles.

ENERGY

WHAT IS ENERGY?

What does energy mean to you?

<http://www.pbslearningmedia.org/resource/nvel.sci.phy.defined/energy-defined/>

ENERGY

- Energy – The ability to do work or cause change
 - Produce warmth, light, sound, movement, growth...
- Is neither created nor destroyed
 - Just transformed or converted from one form to another
- Potential Energy – Stored energy
- Kinetic Energy – Energy of motion

POTENTIAL ENERGY

- Energy of position
 - Water behind a dam
 - Hammer over a nail
 - Cup on the edge of the countertop



KINETIC ENERGY

- Energy of motion
- The form capable of doing work
 - Flowing water
 - A falling hammer
 - The cup falling





The background is a dark blue gradient with several faint, concentric circles centered in the upper half. In the corners, there are white line art elements resembling circuit boards or neural networks, with lines and small circles connecting them.

FORMS OF ENERGY



FORMS OF ENERGY

1. Mechanical Energy
 2. Thermal (heat) Energy
 3. Electromagnetic Energy
 4. Electrical Energy
 5. Nuclear Energy
 6. Chemical Energy
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1. MECHANICAL ENERGY

- Energy associated with the motion of an object
 - Cars moving down a road
 - A frog dancing on a lily pad
 - A bowling ball hitting pins



2. THERMAL ENERGY

- Heat energy
- The heat energy of an object determines how active its atoms are
 - Hot objects have rapidly moving atoms
 - Cooler objects have slow atoms



3. ELECTROMAGNETIC ENERGY

- Energy that travels in waves
 - Gamma rays
 - X-rays
 - UV rays
 - Visible light
 - Infrared rays
 - Microwaves
 - Radio bands



4. ELECTRICAL ENERGY

- Energy caused by the movement of electrons
 - Static shock
 - Lightening
 - Computers / TVs / radios
 - Light bulbs



5. NUCLEAR ENERGY

- Energy stored in the nucleus of an atom
 - Stars
 - Nuclear power plants
 - Nuclear bombs



6. CHEMICAL ENERGY

- Potential energy stored in a chemical bond
 - Food
 - Fire cracker
 - Stomach
 - Battery



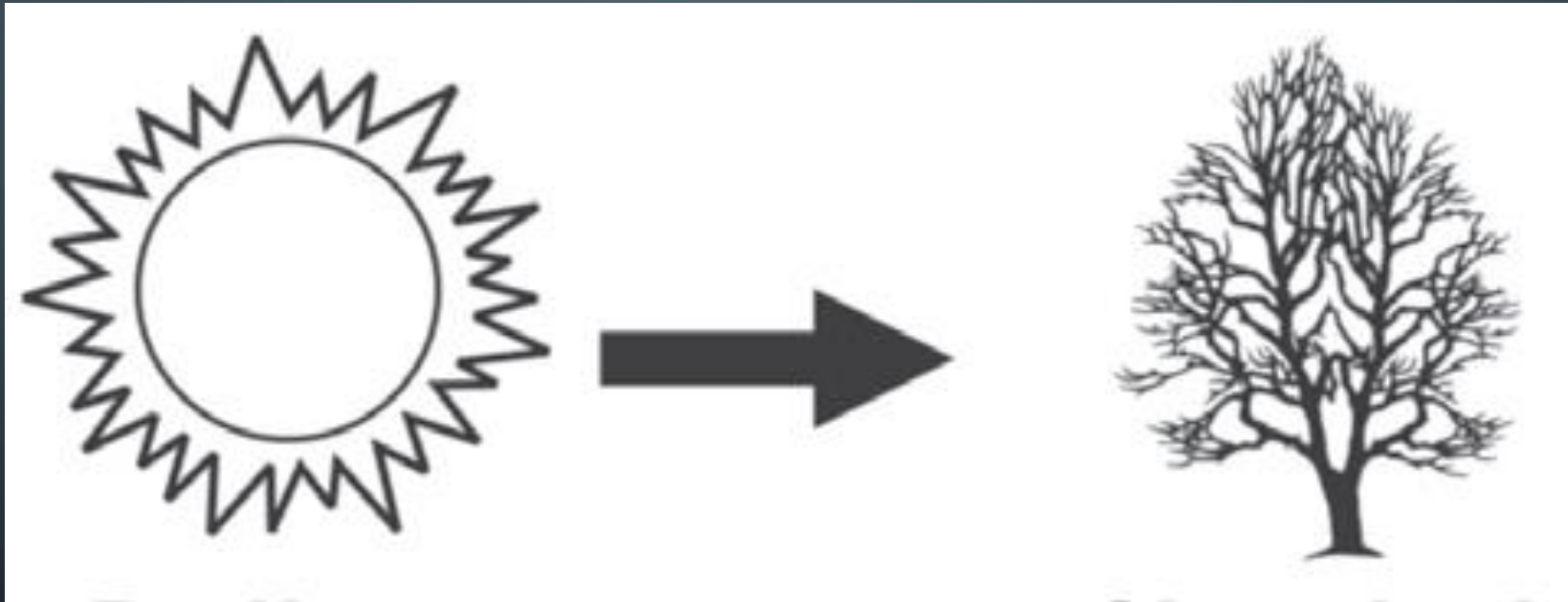
ENERGY TRANSFERRED

- Energy is neither created nor destroyed, only changed
 - Law of Conservation of Energy
 - First Law of Thermodynamics
- No energy transfer is 100% efficient so some energy is lost to the environment but that does not mean it was destroyed, just lost

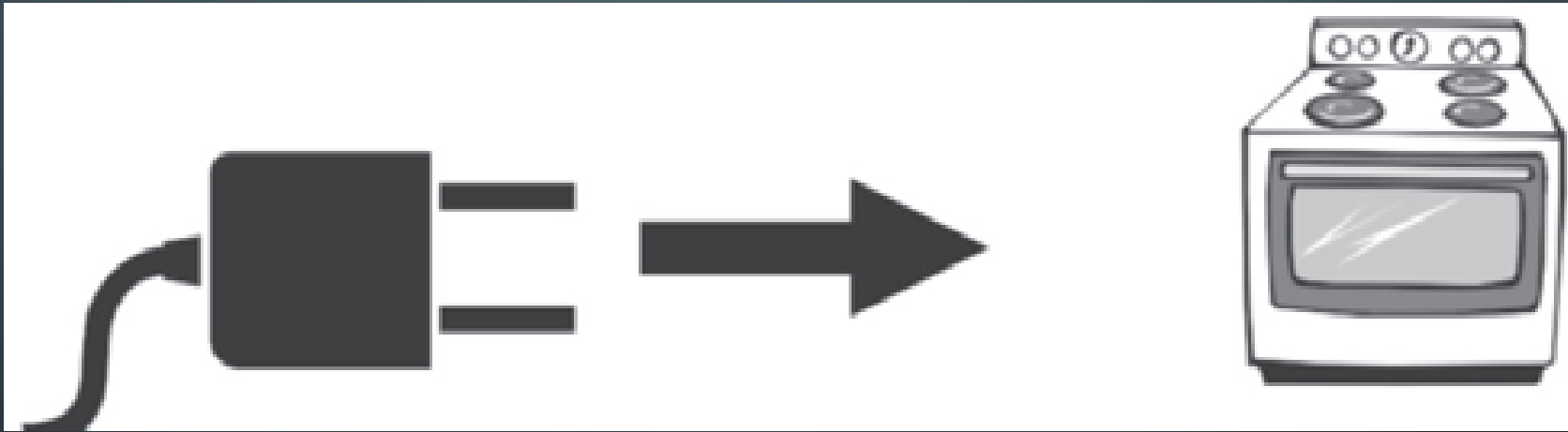
The background is a dark blue gradient with faint, concentric circular patterns. In the corners, there are white, stylized circuit-like lines with small circles at the ends, resembling a network or data flow diagram.

QUIZ TIME!

NAME THE TRANSFER



NAME THE TRANSFER





Electrical energy is transported to your house through power lines.



When you plug an electric fan to a power outlet, electrical energy is transform into what type of energy?

MECHANICAL ENERGY

**What type of energy cooks
food in a microwave oven?**

**ELECTROMAGNETIC
ENERGY**



**What type of energy is the
spinning plate inside of a
microwave oven?**

MECHANICAL ENERGY



WHAT TYPES OF ENERGY ARE SHOWN BELOW?



Mechanical and Thermal Energy
(Don't forget friction)

WHAT TYPE OF ENERGY IS SHOWN BELOW?



Chemical Energy


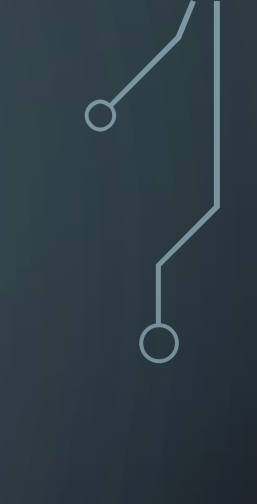
WHAT TYPES OF ENERGY ARE SHOWN BELOW?



**Electrical, Mechanical and
Electromagnetic Energy**



YOUR TURN

- With your table, come up with a description of how mechanical energy could be transformed to electrical energy.
 - With your table, come up with a description of how electrical energy could be transformed to thermal energy.
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