

TO DO Right NOW!

- 1) Send the materials manager to get your journals**
- 2) Complete Activity #24. Be ready to share.**
- 3) Time limit – 5 minutes**

Science Standard

- **S8P2. Students will be familiar with the forms and transformations of energy.**
 - **a. Explain energy transformation in terms of the Law of Conservation of Energy.**
 - **b. Explain the relationship between potential and kinetic energy.**
 - **c. Compare and contrast the different forms of energy (heat, light, electricity, mechanical motion, sound) and their characteristics.**

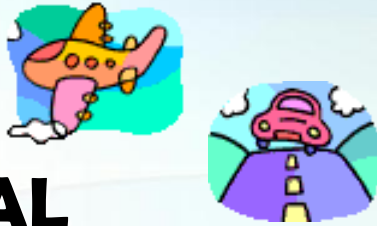
Essential question

**What are the 6
fundamental types of
energy?**

TYPES OF ENERGY

● MECHANICAL

- Car, plane, wagon



● THERMAL

- Heat from moving molecules
- Inside all matter; furnace



● ELECTROMAGNETIC

- Visible light, microwaves, radio waves



● CHEMICAL

- Batteries, matches, body cells



● ELECTRICAL

- Lightning, power lines



● NUCLEAR

- Nuclear power plants, atomic bomb, sun & stars



What is Mechanical Energy?

- o **Energy due to a object's motion (kinetic) and position (potential).**

The bowling ball has mechanical energy.

When the ball strikes the pins, mechanical energy is transferred to the pins!



Examples of Mechanical Energy



What is Electromagnetic Energy?



○ Energy due to the vibrations of electrically charged particles (atoms); travels in waves



○ Includes energy from gamma rays, x-rays, ultraviolet rays, visible light, infrared rays, microwave and radio bands

What is Electrical Energy?

- o **Energy caused by the movement of electrons from one atom to another**
- o **Easily transported through power lines and converted into other forms of energy**



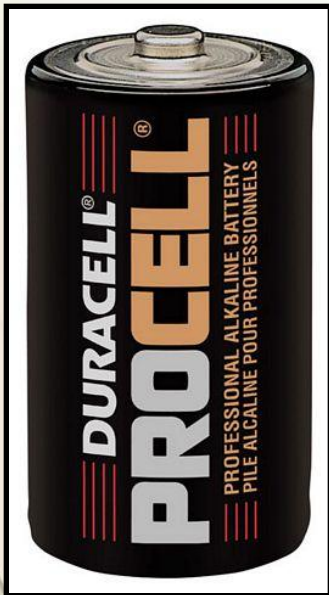
What is Chemical Energy?

o Energy that is available for release from chemical reactions; found in chemical bonds



The chemical bonds in a matchstick store energy that is transformed into thermal energy when the match is struck.

Examples of Chemical Energy



What is Thermal Energy?

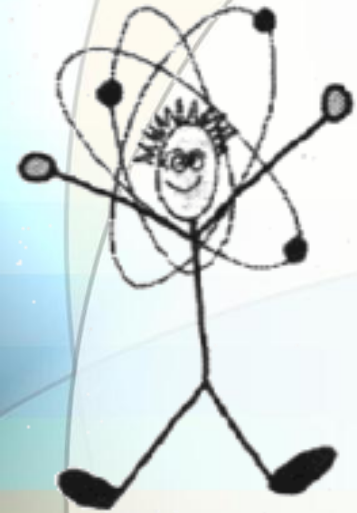
EXCITED
"HOT"
ATOM

- **Kinetic energy created by the motion of atoms and molecules that occurs within an object – how active the atoms are!**
- **Thermal energy exists when you heat a pot of water on a stove**

A hot object is one whose atoms and molecules are excited and show rapid movement.

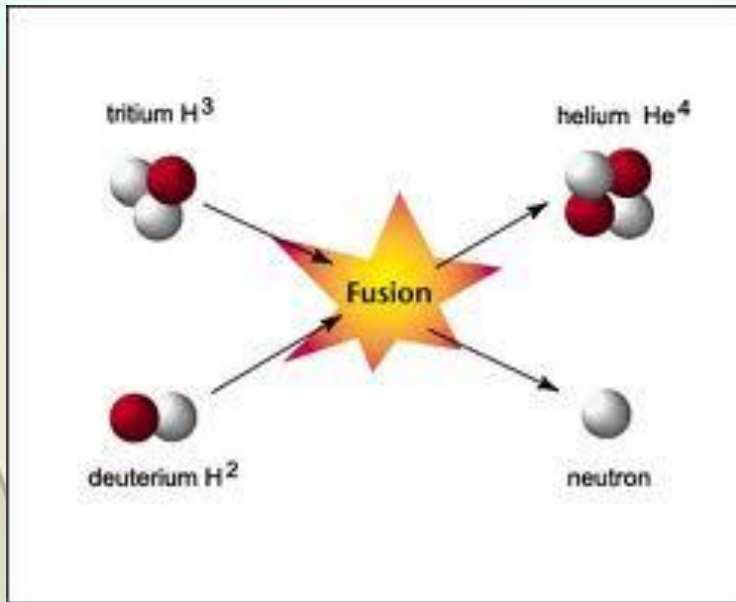
A cooler object's molecules and atoms will show less movement.

LAI D BACK
"COOL"
ATOM



What is Nuclear Energy?

- **Energy contained in the nucleus of an atom**



- **Nuclear energy is released when nuclei are split apart into several pieces, or when they are combined to form a single, larger nucleus**

QUIZ TIME!

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



QUIZ TIME!

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



QUIZ TIME!



What energy transformation occurs when an electric lamp is turned on?

ELECTRICAL ENERGY



ELECTROMAGNETIC ENERGY

What types of energy are shown below?



Mechanical and Thermal Energy
(Don't forget friction)

What type of energy is shown below?



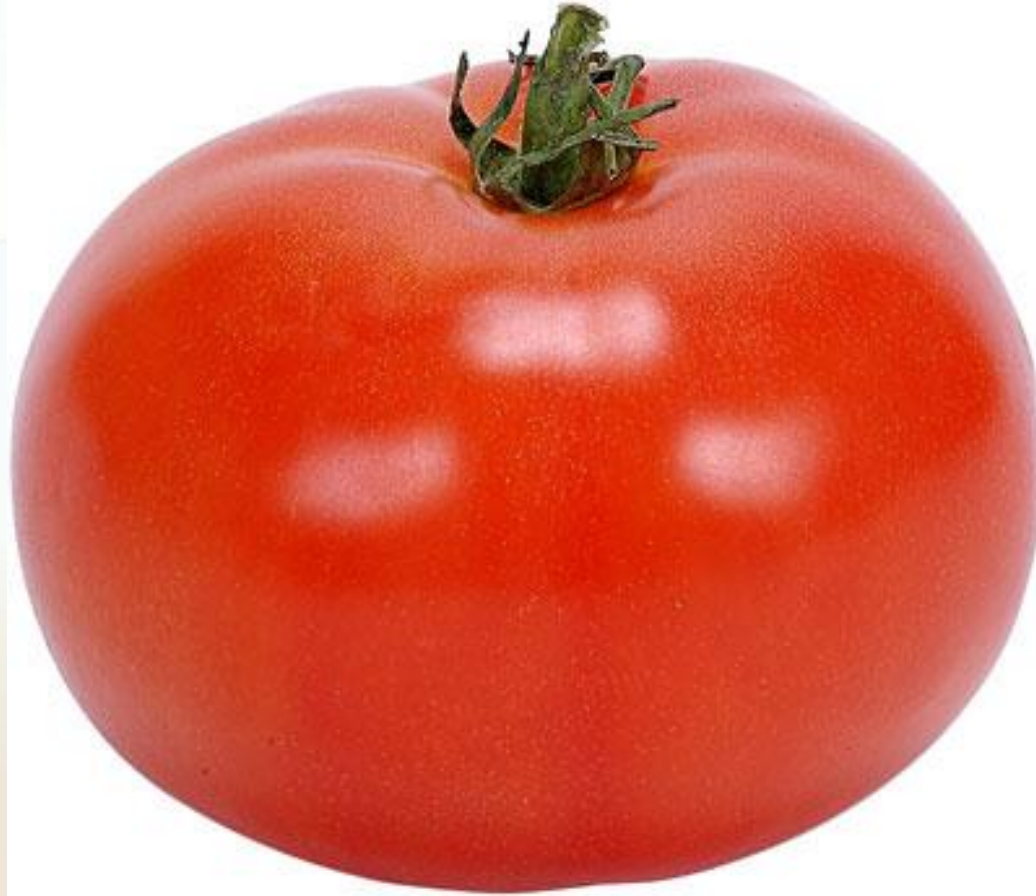
Chemical Energy

What types of energy are shown below?



**Electrical, Mechanical and
Electromagnetic Energy**

What type of energy is shown below?



Chemical Energy (yummy)

What type of energy is shown below?



Thermal Energy

Revisit Essential Question & Summarize

**In a few sentences answer the EQ
and summarize today's lesson in
your notes.**

**To reach our online textbook website, go to
my.hrw.com**

Note: Do not put "www" in front of the URL address.

User: cscience33

Password: k3h4w

- Go to**
- 1) Online Interactive textbook**
 - 2) Chapter 9 (be sure to click go)**
 - 3) eActivities (2nd tab at the top)**
 - 4) Virtual Investigation**