Introduction to Thermochemistry

Thermochemistry

The study of **ENERGY TRANSFER** in the form of heat during chemical reactions and physical changes.

Deals with:

energy, temperature, heat

What is energy?

The ability to do **WORK**

Potential Energy:

Stored energy

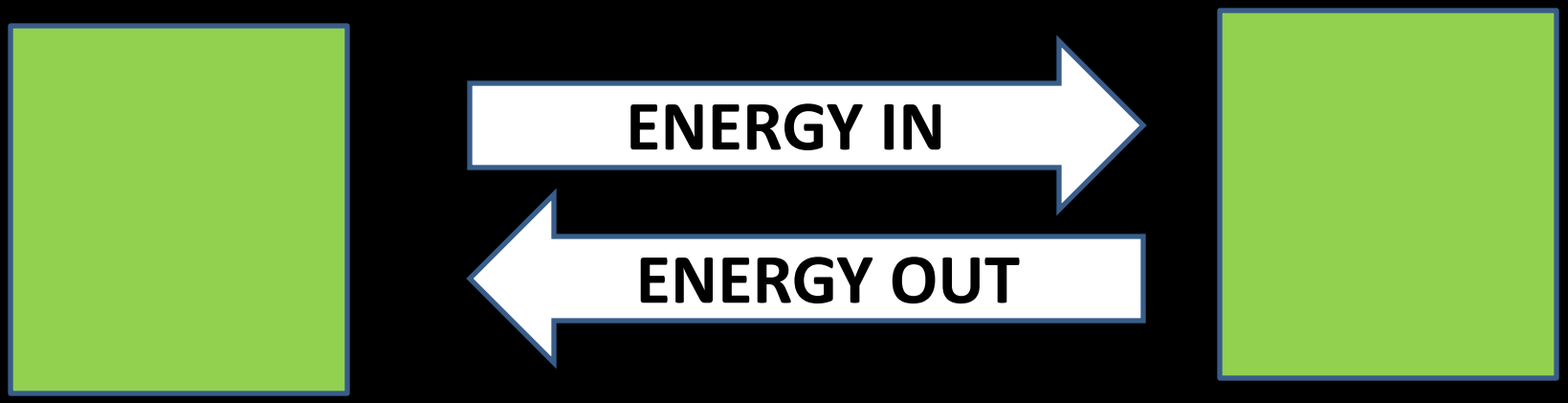
Kinetic Energy:

Energy due to motion

Law of Conservation of Energy

You cannot create or destroy energy.

If something loses energy, something else has to gain it!



Law of Conservation of Energy and Law of Conservation of Mass

Energy and Mass are Related!

$E=mc^2$
you can convert between energy and mass!

Temperature vs. Heat

Temperature:

A measure of molecular movement

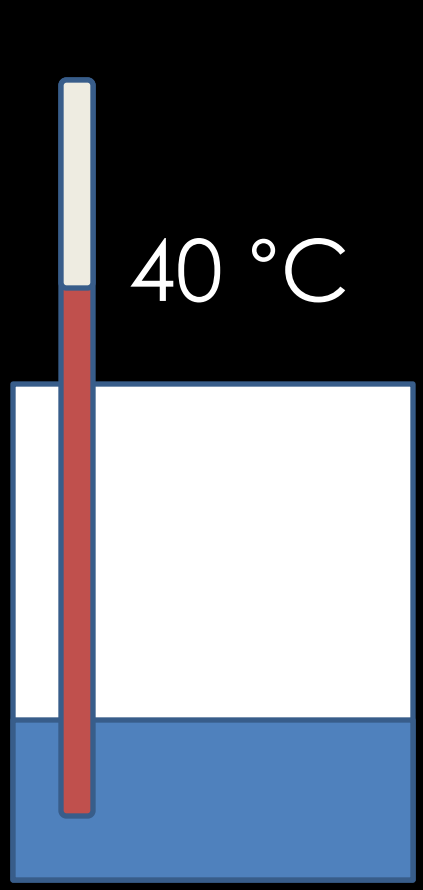
Deals with: only movement

Heat:

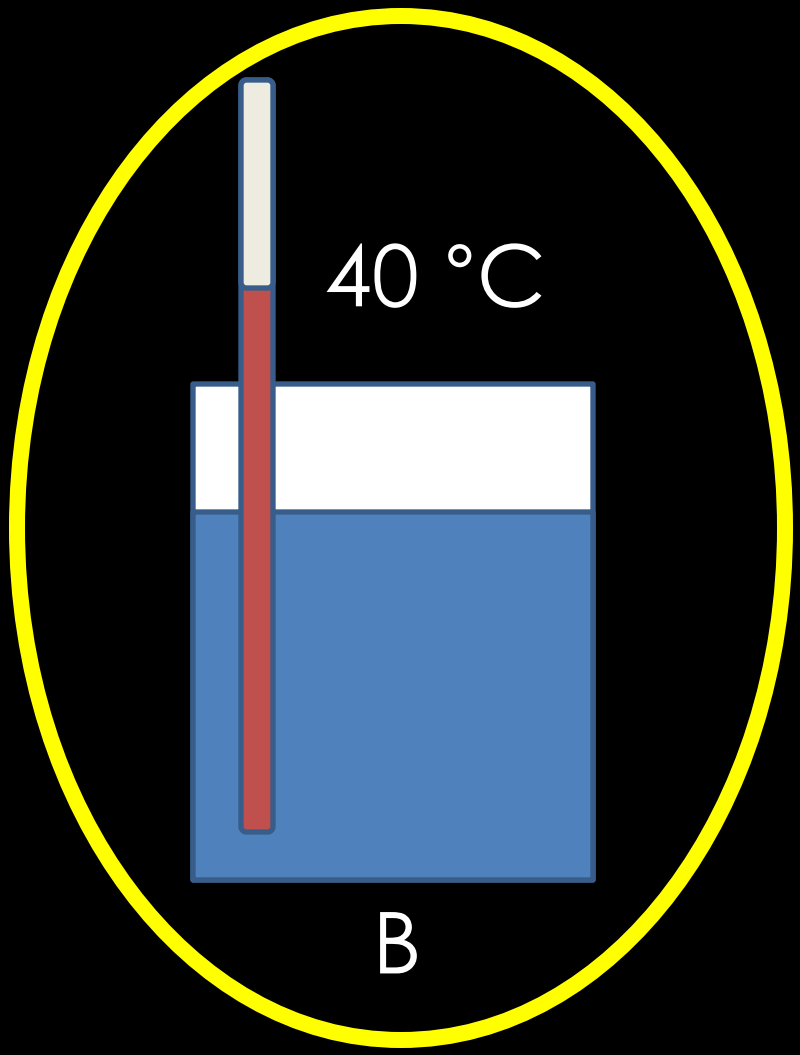
Energy that can be transferred due to the molecular movement.

Deals with: movement AND the <u>amount</u> and type of molecules

Which has more heat?

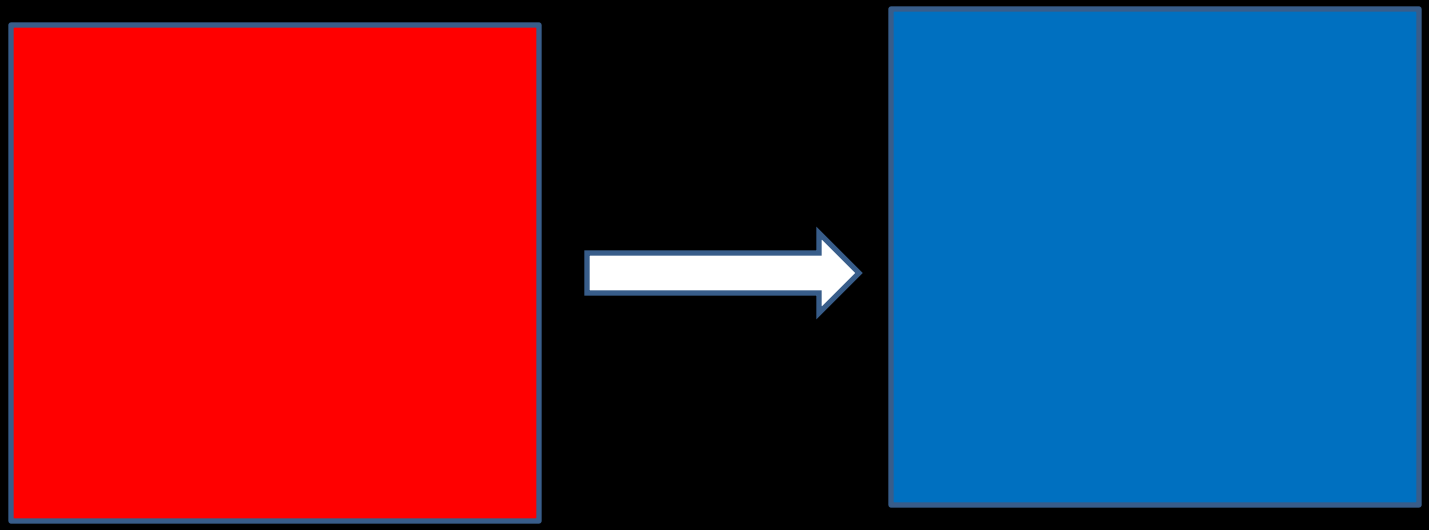


A



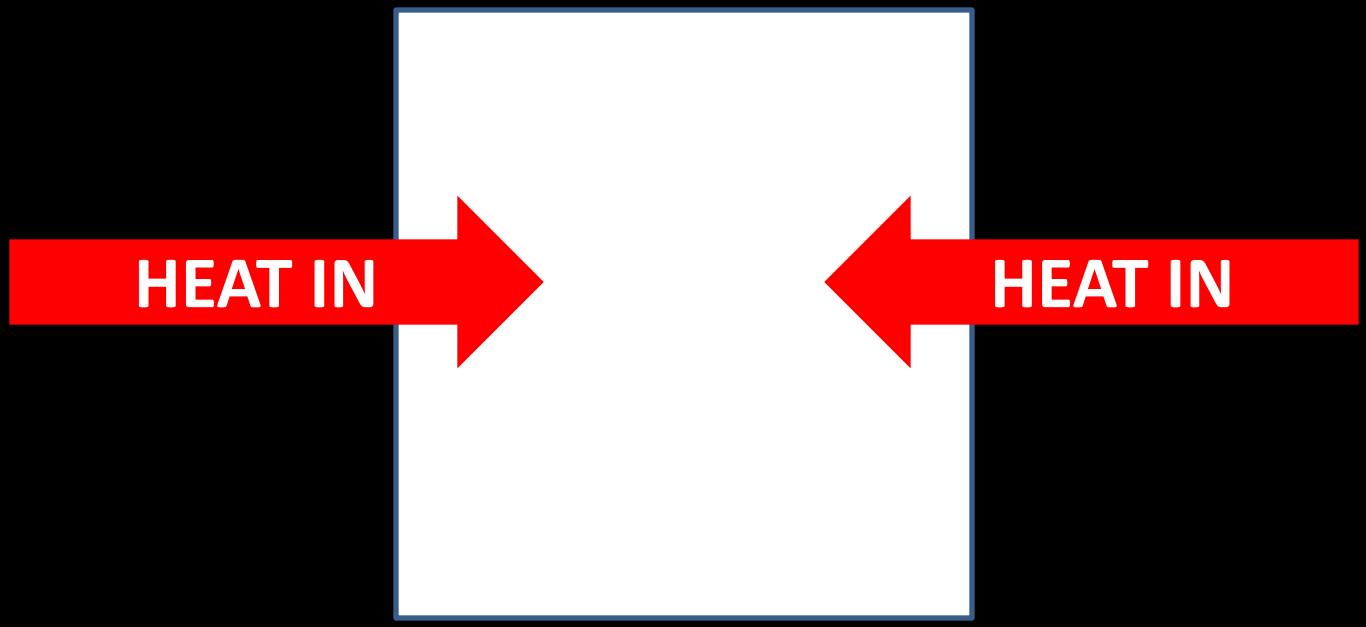
B

Which way does heat flow?



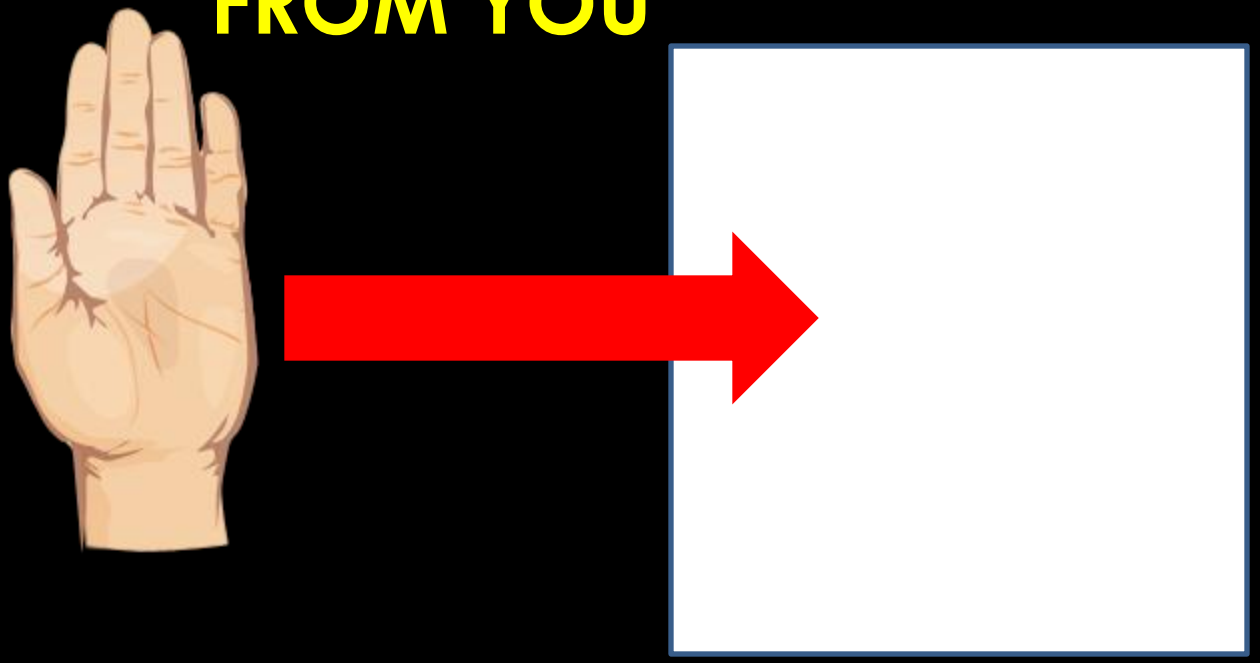
Endothermic

When a reaction **ABSORBS HEAT**



What do you feel???

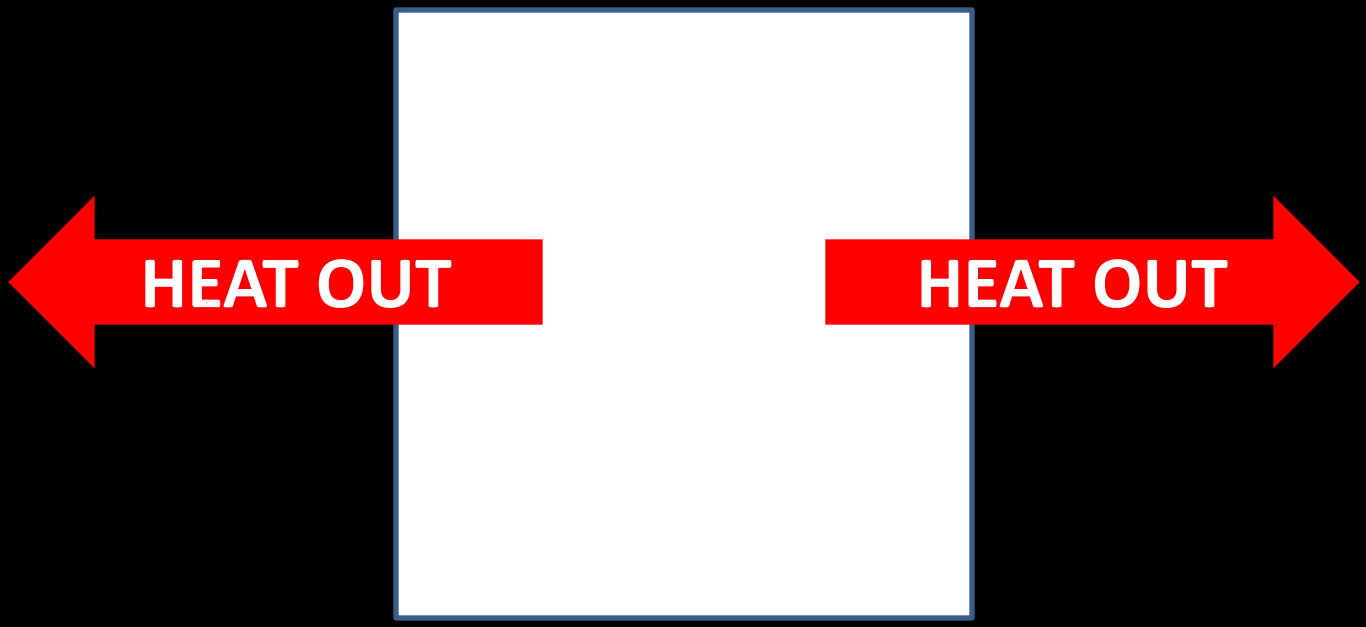
When a reaction **ABSORBS HEAT FROM YOU**



YOU FEEL **COLD!!!!!**

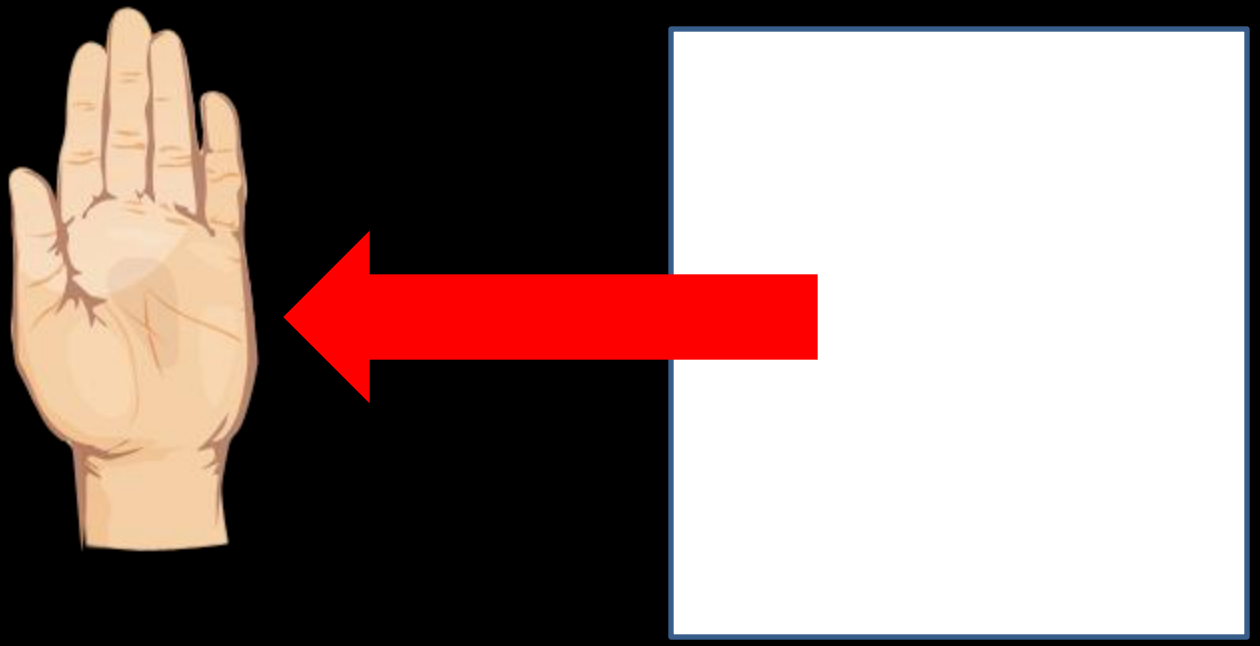
Exothermic

When a reaction **RELEASES HEAT**



What do you feel???

When a reaction **RELEASES HEAT**
TOWARDS YOU



YOU FEEL **HOT!!!!!**

Hot or Cold ALL depends on PERSPECTIVE!!!

Yours or the reactions?