

The background of the image is a wavy checkerboard pattern. The squares are in shades of pink and cream, and the lines between them are wavy, creating a fluid, organic feel.

Chemistry ★



Temperature : average of kinetic energy. (Temperature is proportional to the kinetic energy).

Energy : ability to do work or produce heat.

Energy : kinetic energy / potential energy.



constant random motion.



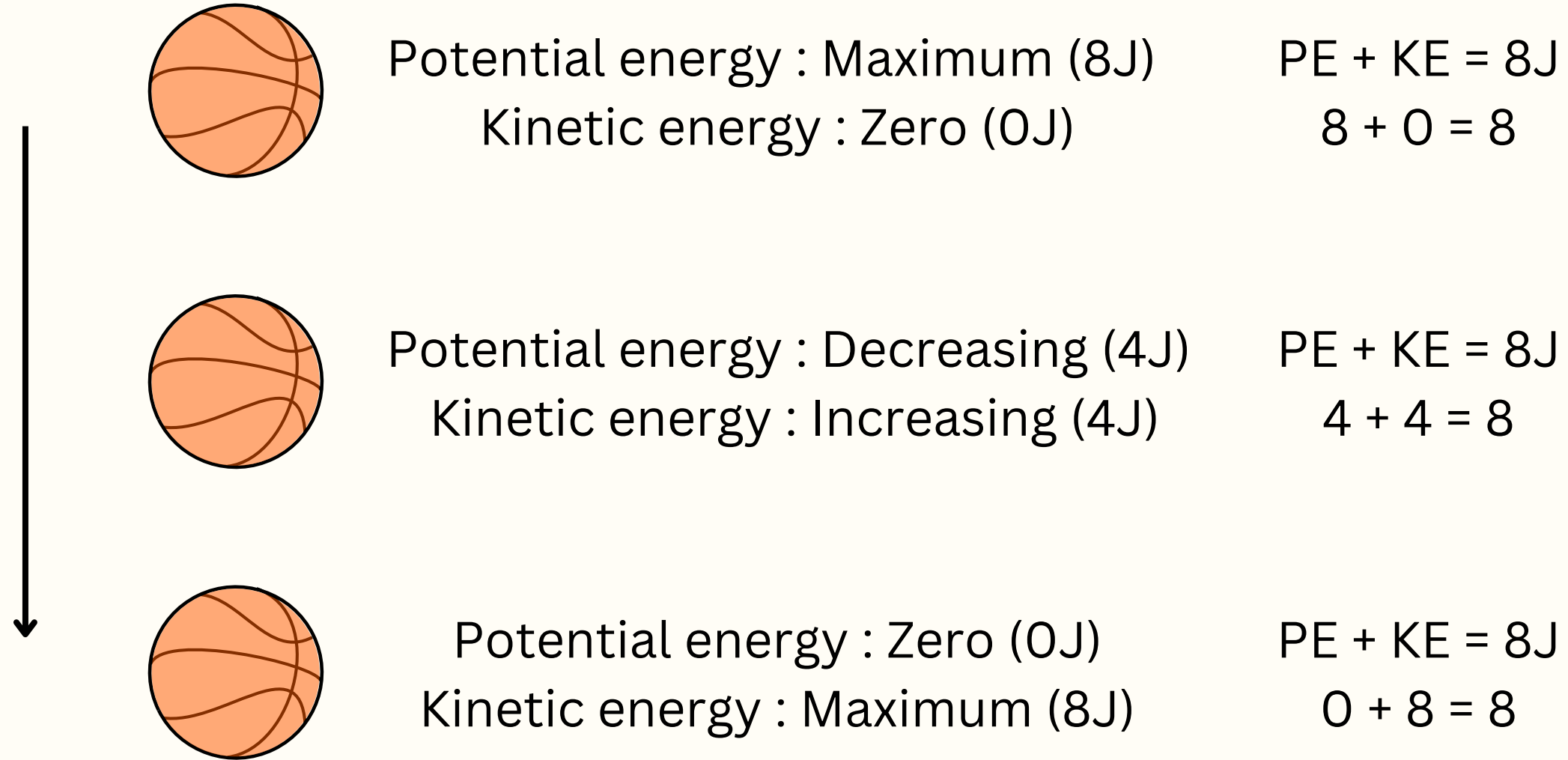
Composition or position.

Chemical systems contain both kinetic energy and potential energy.

Composition : type of atoms, number and type of chemical bonds, and how atoms are arranged.

The law of conservation of energy : states that in any chemical reaction or physical process, energy is neither created nor destroyed, but can change from one form to another.

Law of conservation of energy ---> First law of thermodynamics



Potential energy : PE, Kinetic energy : KE

Their sum is constant

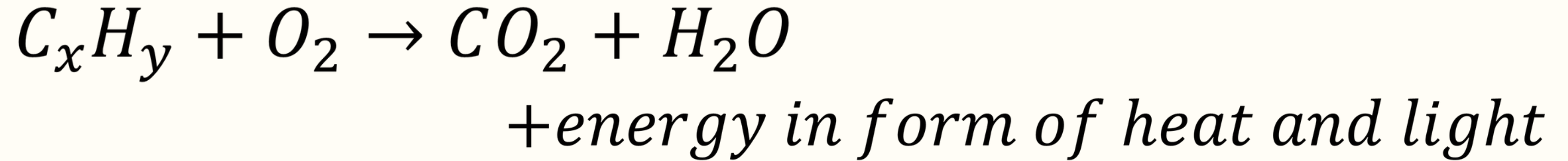
Chemical potential energy : is energy stored in a substance because of its composition.

Chemical potential energy is released or absorbed as heat during chemical processes or reactions.

Chemical potential energy plays an important role in chemical reactions.

Combustion reaction :

x, y : any number



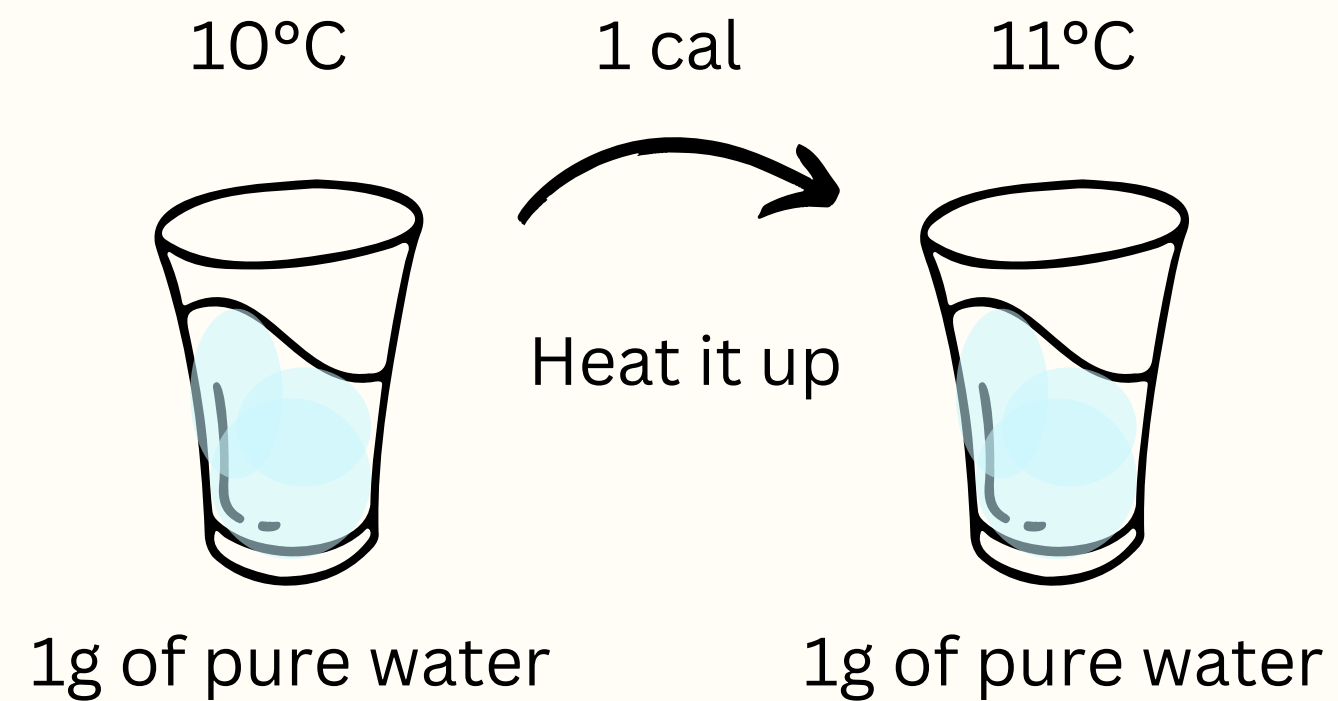
HydroCarbon + Oxygen → Carbon Dioxide + Water + energy in form of heat and light

Heat : is energy that is in the process of flowing from a warmer object to a cooler object.

Heat ---> q

Heat can be measured in calorie.

A **calorie** (cal) : is defined as the amount of energy required to raise the temperature of one gram of pure water by one degree Celsius (1°C).



The energy content of food is measured in nutritional Calories.

1 nutritional Calorie equals 1000 calories, or 1 kilocalorie (kcal).

Joule (J) : SI unit of energy and heat.

$$1 \text{ J} = 0.239 \text{ cal}$$

$$1 \text{ cal} = 4.184 \text{ J}$$

$$1 \text{ Calorie} = 1000 \text{ cal} / 1 \text{ Kcal}$$

The specific heat (C) of any substance : is the amount of heat required to raise the temperature of one gram of that substance by one degree Celsius.

Specific heat can be measured in $\text{J/g}\cdot^{\circ}\text{C}$

Because different substances have different compositions, each substance has its own specific heat.

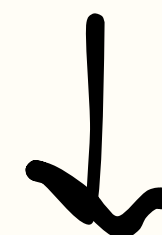
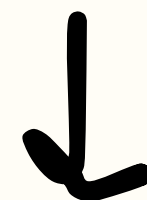
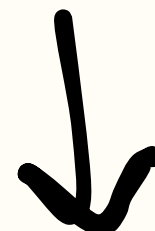
cal **or** J

J/g•°C

g

K **or** °C

$$q = c \times m \times \Delta T$$



Specific heat

Heat absorbed or released / Energy

Mass

Change in temperature

$$T_f - T_i$$

Final temperature minus initial temperature

The background is a wavy checkerboard pattern of pink and cream-colored squares. In the center, there is a white rounded rectangle containing the text.

Have a nice day ★