

Energy Forms and Transformations

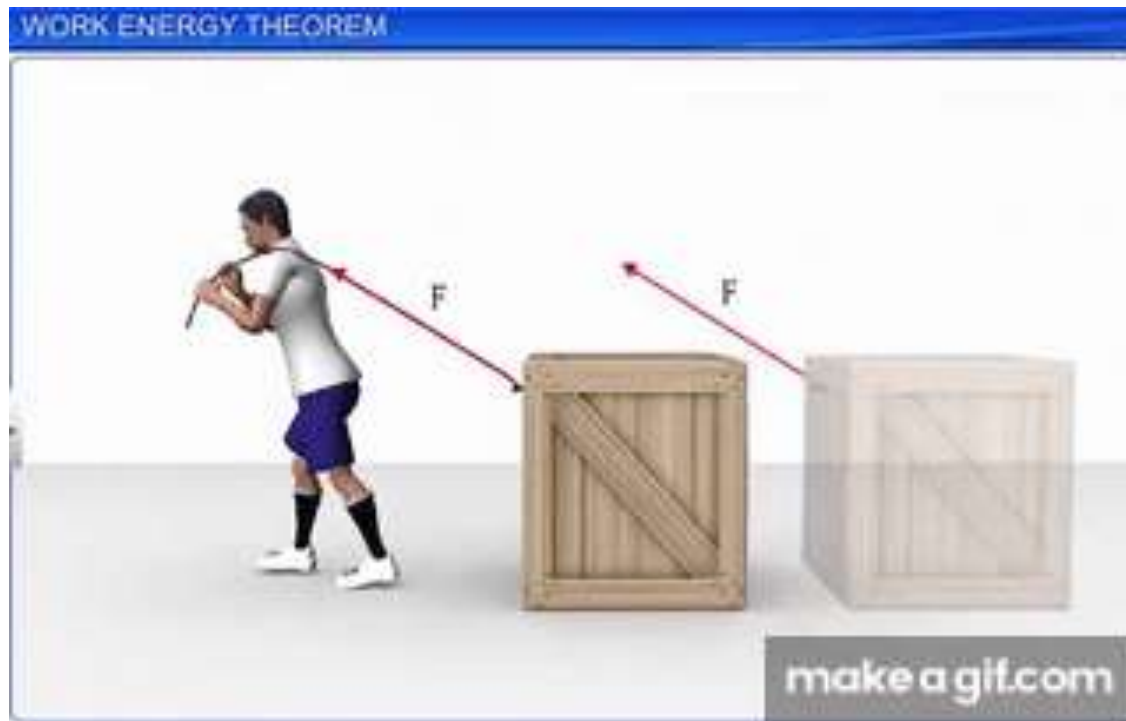


Key word

- form – хэлбэр
- spreading out – гадагш тархах
- vibrate – чичирхийлэлт
- principle - хууль
- conversation – хадгалагдах
- create – бий болох, үүсгэх
- destroyed – устах, устгах
- disappear – алга болох
- fission – хуваагдалт
- fusion – нэгдэх

What is energy?

- Energy is the ability to do work. We measure energy in units called **Joules**.



Form of energy

- Chemical energy

- Elastic energy

- Electrical energy

- Electrical energy

- Gravitational potential energy

- Kinetic energy

- Thermal energy

- Sound energy

- Magnetic energy

- Light energy

- Nuclear energy

principle of Conservation of Energy

- Energy can not be created or destroyed but is transformed from one form to another.

Example

Lighting a match

Chemical energy transforming into radiant (light) and thermal (heat).



Mechanical Energy

- Energy of motion or position
- Sound, wind, waterfall, compressed spring, moving machine parts.



Electrical Energy

- Energy carried by electricity.
- Electricity from batteries, power lines, lightning.

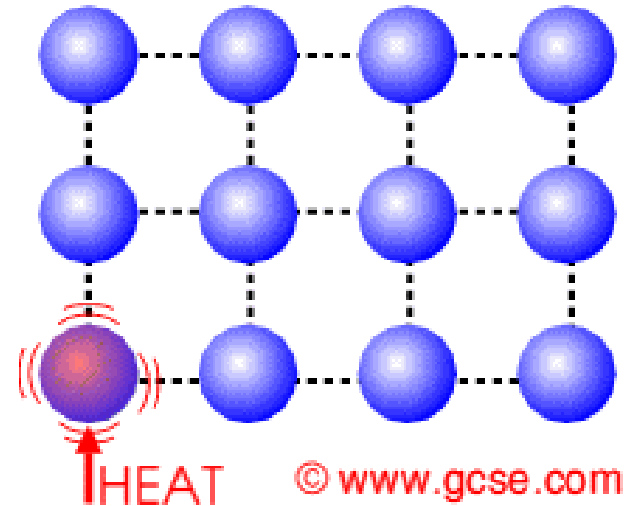


Magnetic Energy



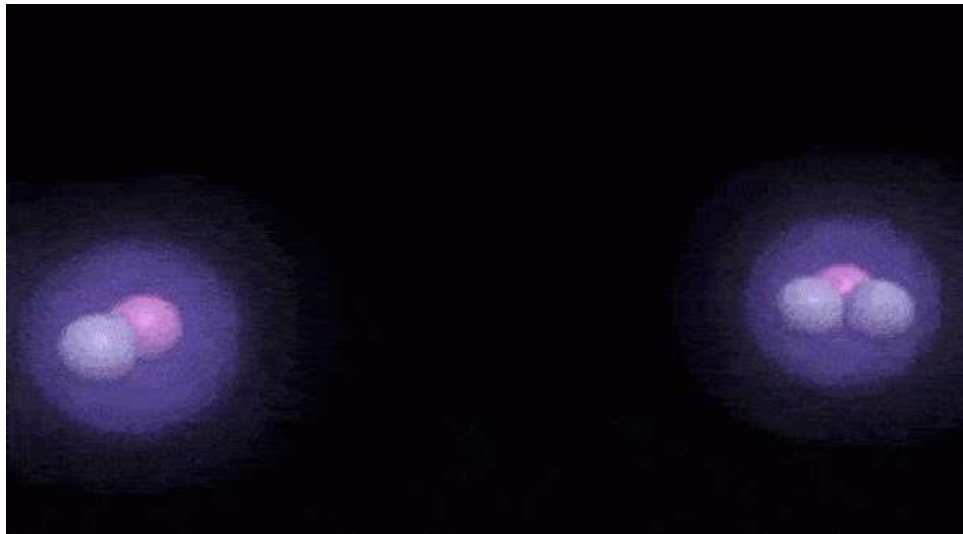
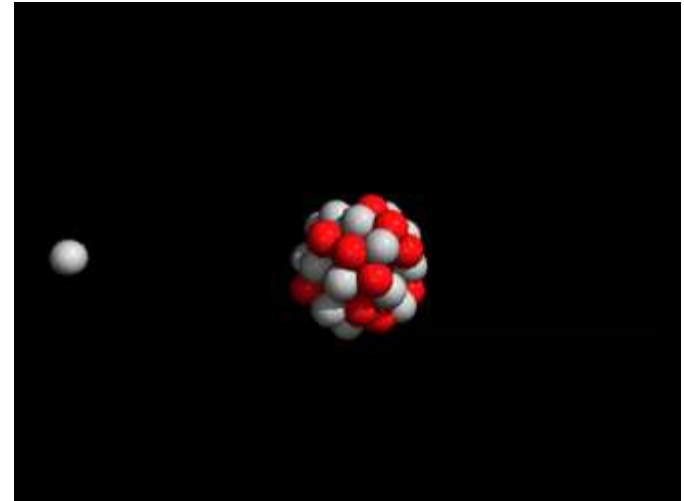
Thermal Energy

- The internal motion of an objects atoms and molecules.
- Measured by temperature.
- The faster particles move, the more thermal energy they have.
- Fire



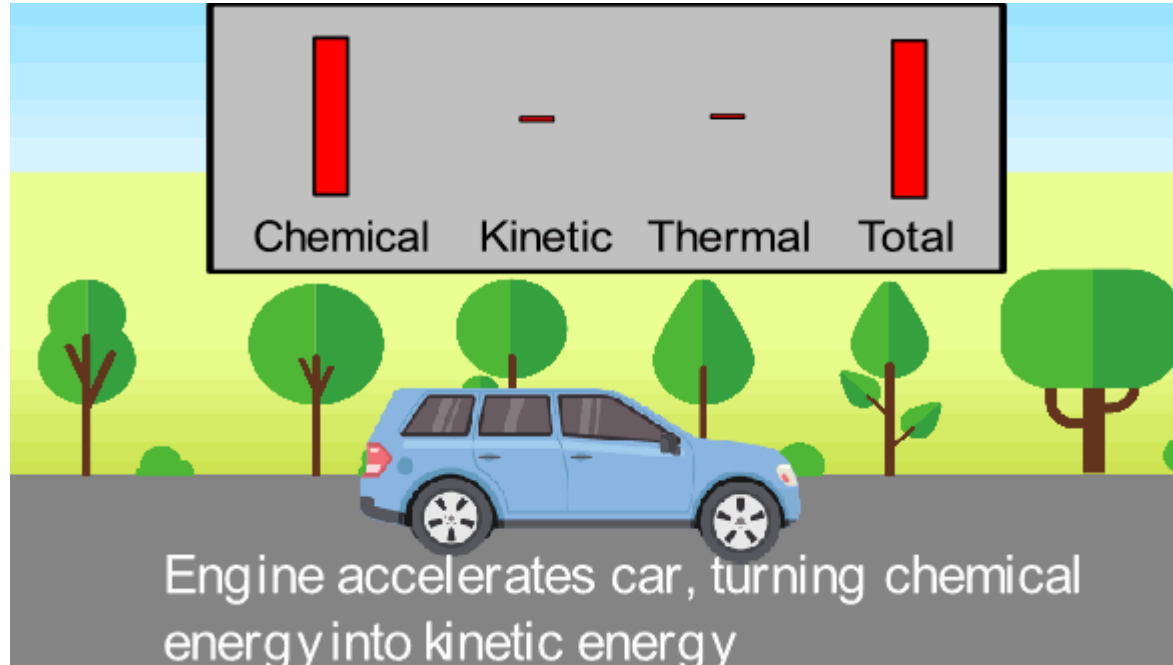
Nuclear Energy

- Energy stored in center (nucleus) of an atom
- Most powerful
- Fission (breaking apart), Fusion (forming), Sun



Chemical Energy

- Energy stored by chemical bonds in an object.
- When bonds are broken, energy is released.
- gasoline, food, coal, wood



Energy transfer

Windmill –

Flashlight –

Microwave –

Firecracker –

Bicycle –

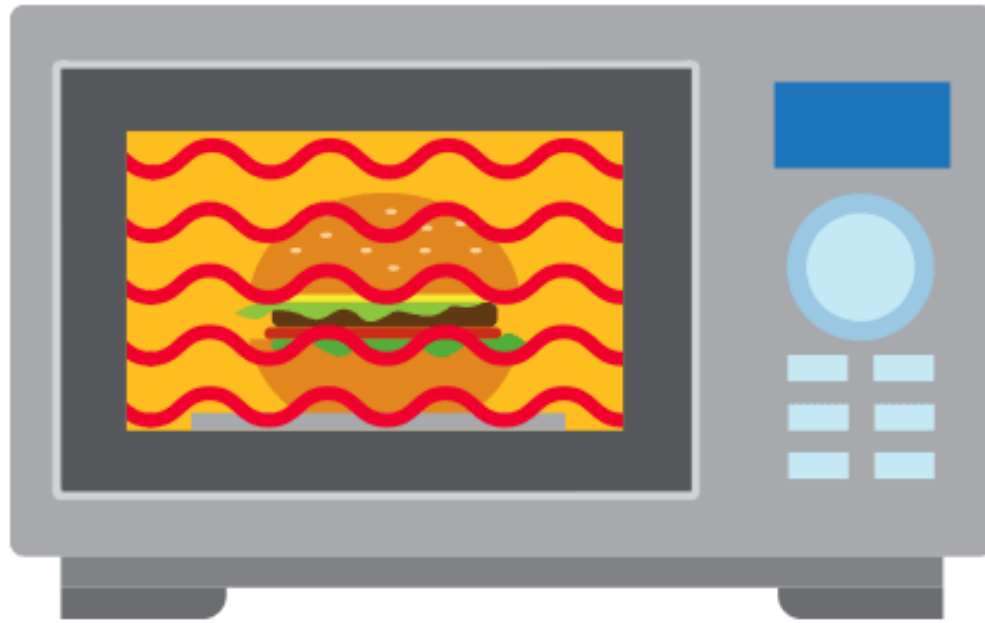
Battery –



Windmill – Mechanical (wind) → Mechanical (turning blades) → Electrical energy



Flashlight – Chemical & Electric (batteries) →
Radiant (light) & Thermal (heat)



Microwave – Electric (outlet) → Radiant (light),
Mechanical (Sound) & Thermal (heat)

Windmill – Mechanical (wind) → Mechanical (turning blades)

Flashlight – Chemical & Electric (batteries) → Radiant (light) & Thermal (heat)

Microwave – Electric (outlet) → Radiant (light), Mechanical (Sound) & Thermal (heat)

Firecracker – Chemical → Thermal (heat), Radiant (light), Mechanical (sound)

Bicycle – Chemical (cells in body) → Mechanical (legs peddling) & Mechanical (bicycle)

Battery – Chemical & Electrical → nothing until it is used



Firecracker – Chemical \rightarrow Thermal (heat), Radiant (light), Mechanical (sound)

Try the following:

Electrical to Thermal –

Chemical to Thermal –

Electrical to Mechanical –

Electrical to Thermal – electric blanket, hair dryer,
electric heater, electric stove top, toaster

Chemical to Thermal – chemical digestion, burning
fossil fuels, a lighter

Electrical to Mechanical – blender, mixer, baby
swing, ceiling fan

Homebook

End of chapter questions

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