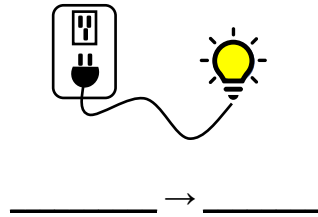


CONCEPT: INTRO TO ENERGY AND KINETIC ENERGY

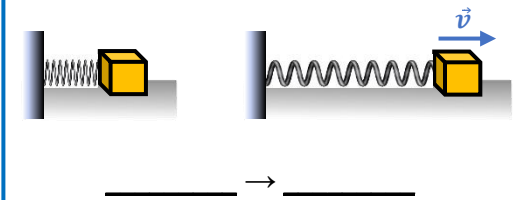
- **Energy** is a physical quantity that objects have. We don't know **WHAT** it is, but we know **HOW** it works. Unit: **Joule** []
 - Exists in *many* forms (Heat, light, nuclear, etc.); It can't be created or destroyed, only between forms.

- 1) Kinetic (Motion)
 - 2) Potential
 - 3) Thermal
 - 4) Light
 - 5) Sound
 - 6) Electrical
- Many more...*

Electrical outlet powering a lightbulb



Spring (elastic potential) launching a toy



- KINETIC Energy (**KE** or **K**) is the energy due to an object's ().
- All energies are , not Vectors. So **KE** is *always* and has NO direction.

KE =

EXAMPLE: Calculate the kinetic energy of a 5kg box moving across a horizontal surface **a)** to the right with 3m/s; **b)** to the left with 2m/s.

PROBLEM: About 50,000 years ago, a meteor crashed into the earth near present-day Flagstaff, Arizona. Some estimates suggest this meteor had a mass of about 1.4×10^8 kg and released 1×10^{16} J of energy when it slammed into the Earth. Calculate the approximate speed of this meteor before impact.

- A) 8,450 m/s
- B) 12,000 m/s
- C) 1.43×10^8 m/s