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Anchor Charts for ENERGY

Anchor Charts Cover:

- energy
- mechanical energy
- potential and kinetic energy
- calculating kinetic energy
- calculating gravitational potential energy
- Law of Conservation of Energy
- types of energy: mechanical, potential, kinetic, gravitational, elastic, nuclear, chemical, radiant, light, solar, magnetic, sound, electrical, thermal
- energy transfer and transformation
- ways that energy can be transferred
- heat and temperature
- thermal equilibrium
- radiation, conduction, and convection
- heat transfer in the atmosphere
- electricity
- electric currents

- **DC and AC**
- **conductors and insulators**
- **electric circuits**
- **parts of a circuit**
- **open and closed circuits**
- **series and parallel circuits**
- **work**
- **power**
- **simple machines: inclined plane, wedge, screw, level, pulley, wheel and axles**
- **types of levers**
- **mechanical advantage: ideal and actual**
- **calculating ideal and actual mechanical advantage**
- **renewable and nonrenewable resources**
- **hydroelectric power**
- **solar energy**
- **wind energy**
- **biomass or biofuel**
- **geothermal energy**
- **fossil fuels: coal, petroleum (oil), natural gas**
- **nuclear energy**
- **conservation of resources**
- **and more!**

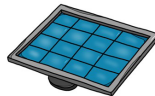


Energy Transformations

Energy **changes from one form to another.**

Example:

When our Sun shines on solar panels, the solar energy will transform into electrical energy.



With energy transformations almost always, some energy is transformed into heat!



Heat

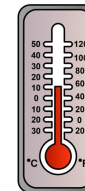
form of energy (thermal) that is transferred from objects that are different temperatures



Temperature

measure of hotness or coldness

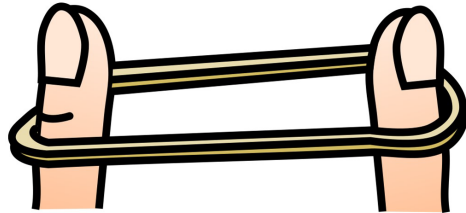
- measured in Celsius, Fahrenheit, and Kelvin



Frame Size

Potential Energy (PE)

stored energy due to
its position or shape



Kinetic Energy (KE)

energy of motion



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Examples of Potential and Kinetic Energy

Potential Energy

a hammer pulled
back ready to swing



Kinetic Energy

a hammer tapping a nail

glass sitting on a table



glass falling off a table

gasoline in a car



car using gasoline to go

an arrow is pulled back



an arrow is released

**Total energy in the
system stays the same.**

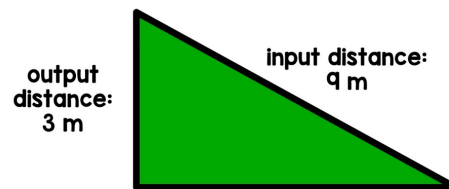
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Half-Sheet Size

Calculating Ideal Mechanical Advantage

$IMA = \text{input distance} \div \text{output distance}$

Calculate the Ideal Mechanical Advantage of the inclined plane.



IMA
 $\text{input distance} \div \text{output distance}$

$$9 \div 3$$

$$3$$

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Full-Sheet Size