

Unit: 1. WORK AND ENERGY

VOCABULARY

actual mechanical advantage (AMA) the ratio of the resistance force to the effort force

biomass a material made from plants or animals

chemical energy energy derived from chemical bonding between atoms

conservative forces forces that, when applied, cause no change in the total mechanical energy of an object

dissipate to spread out

efficiency the ratio of work output to work input or the ratio of AMA to IMA; the ability to produce effect without loss to friction

effort force the force applied to a simple machine

electrical energy a secondary source of energy derived from changes in motion

energy a property capable of causing changes in matter

fossil fuel a carbon-based fuel derived from living matter that existed in prehistoric times

fulcrum the point about which a lever pivots

gears wheels with teeth

geothermal energy energy obtained from steam or water heated below the earth's surface by natural sources of heat

gravitational potential energy stored energy due to its position above the ground (or some stated "zero" position)

horsepower the English system unit of power equal to 746 watts

hydro-energy energy obtained by directing moving water over blades or turbines

ideal mechanical advantage (IMA) the number of times the effort force could theoretically be multiplied, neglecting friction

inclined plane	a plane set at an angle to the horizontal and used to raise or lower a load
joule	the metric unit of work and energy; equal to one newton times one meter
kinetic energy	the energy of a moving object
lever arm	the distance between the force and the pivot or fulcrum
mechanical advantage	the comparison of the output force to the input force
mechanical energy	the energy of moving objects or objects that have the capacity to move; the sum of the kinetic and potential energy of an object
mechanics	the analysis of bodies in motion
non-conservative forces	forces such as friction that cause energy to transfer from an object and be dissipated into the surroundings
nonrenewable resource	an energy resource that that cannot be replenished in a short period of time
nuclear energy	energy released during the fission of an atomic nucleus or the fusion of two atomic nuclei
potential energy	stored energy
power	the rate at which work is done or energy is transferred
pulley	a grooved wheel over which a rope can move
renewable resource	an energy resource that can be replenished in a short period of time
resistance force	the force the machine applies to overcome resistance
screw	an inclined plane wrapped around a cylinder
solar energy	the use of the Sun's radiation to directly heat living or working spaces or to produce electricity
tidal energy	energy derived from the movement of oceanic water masses

torque	the tendency of a force to cause or change the rotational motion of an object; the product of force perpendicular to the distance of the force from the point of rotation
watt	the metric unit of power equal to one joule per second
wave energy	energy obtained from the movement of wind-driven water waves
wedge	a double-sided inclined plane
wheel and axle	a large wheel firmly secured to a smaller wheel called the axle
wind energy	energy created by the Sun's uneven heating of the Earth's surface
work	the product of force and the distance through which it moves; energy transferred as a result of motion