

GRADE 8: SYSTEMS IN ACTION UNIT VOCABULARY



Name: _____ Class: _____ Date: _____

System:

Mechanical System:

Physical System:

Social System:

Automation:

Block and tackle:

Compound/Complex Machine

Component:

Efficiency:

Force:

Friction:

Fulcrum:

Gear:

Hydraulic:

Inclined Plane or Ramp:

Industry:

Input:

Lever:

Load Arm/Effort arm:

Wedge:

Machine:

Mechanical Advantage:

Mass and Weight (how are they the same and how are they different?):

Newton:

Output:

Pneumatic:

Pulley:

Screw:

Simple Machine:

Work (formula too):

Wheel and Axle:

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(ANSWERS)

System: A combination of parts that together perform a task or function.

Mechanical System: A combination of simple machines and motors that performs one or more tasks.

Physical System: A group of physical parts that work together to perform a task.

Social System: A number of people or organisms that interact together to perform tasks or to establish relationships.

Automation: The use of largely automatic machines and processes in the production process.

Block and tackle: a system of two or more pulleys with a rope or cable threaded between them, usually used to lift or pull heavy loads

Compound/Complex Machine: A device that consists of two or more simple machines used to perform a task.

Component: A part of a machine or system.

Efficiency: A measure of the useful work performed by a machine in relation to the energy put into the machine – usually stated as a percentage. No machine is 100% efficient since there is always friction.

Force: Any push or pull. It can be a contact force or a Force at a distance.

Friction: The force that is a result of rubbing of two materials passing in contact with one another. It opposes motion and results in the generation of heat and decreases the efficiency of a machine.

Fulcrum: The point or edge about which a lever rotates.

Gear: A toothed wheel that works together with another to change the direction or speed of rotational motion.

Hydraulic: a mechanical function that operates through the force of liquid pressure

Inclined Plane or Ramp: A simple machine that consists of a slanted surface that is taller or elevated at one end

Industry: The sum or totality (all) of manufacturing or technically productive enterprises in a particular field.

Input: One or more things that are added to or used in creating something else (ingredients).

Lever: A simple Machine made of a beam or rod that pivots on a hinge or fulcrum. There are three classes.

Load Arm/Effort arm: The length of a lever from the fulcrum to the point the load is located is the Load arm and the distance from the fulcrum to the point of applied force is the effort arm.

Wedge: A simple machine that has a shape of a triangular prism – with a sharp edge and a wider end.

Machine: A mechanical device that is designed to accomplish a task.

Mechanical Advantage: A measure of the ratio of the force produced by a machine and the force applied to a machine. It is a measure of the performance of a machine. $MA = \text{Output Force} \div \text{Input Force}$.

Mass and Weight (how are they the same and how are they different?):
Mass is a measure of the amount of matter in an object. Measured in grams or kilograms. Weight is the force of gravity on a mass. On Earth, Mass and weight are seen as the same but on other planets, or the moon, your weight changes but your mass stays constant.

Newton: The unit of force (N) – named after the scientist Sir Isaac Newton.

Output: Things that are produced as a result of manufacturing or other process.

Pneumatic: the science and technology of pressurized air. Pneumatics is a branch of engineering that makes use of gas or pressurized air.

Pulley: A pulley is a wheel on an axle or shaft that is designed to support movement and change of direction of a taut cable or belt, or transfer of power between the shaft and cable or belt.

Screw: A simple machine consisting of a regular spiral thread wrapped around a tapered or flat – ended cylinder. It is used to convert rotational motion into linear motion or torque force into linear force.

Simple Machine: one of six devices that are used to change the direction or magnitude of applied force. They include the lever, inclined plane, screw, wedge, wheel and axle and pulley.

Work (formula too): A measure of how much energy is used – it is the product of an applied force over a distance. We use the formula: $W = F \times D$

Wheel and Axle: a machine consisting of a wheel attached to a smaller axle so that these two parts rotate together in which a force is transferred from one to the other.

