

ENGINEERING

GLOSSARY

Here is a quick list of important vocabulary words to help the budding engineers with their projects!

Engineering: Engineering is the process of creating and building structures, products, and systems by using math and science. An engineer is a person who does the engineering. Engineers solve problems with their inventions. Engineering is the E in STEM!

Engineering Principles: By engineering principles, we mean the ideas, rules, or concepts that need to be kept in mind when solving an engineering problem. That is because the concepts used to solve a problem will often be different depending on the type of problem encountered. The basic principles to consider are exploring, problem solving, and improving!

Engineering Design Process: This is the process by which engineers define problems, conduct research, develop a plan, and create and/or redesign their solution. The process includes: Ask, Imagine, Plan, Create, Improve.

Simple Machine: A device that can change the direction or the magnitude of a force, or the point where it is applied. This is done so that the force can be used to do work. Simple machines make tasks easier for us!

Incline Plane: A simple machine that uses a slope to allow less force to be used when moving an object. This is done by either resisting or utilizing the force of gravity (push or pull). An example of an incline plane is a ramp.

Wheel and Axle: A simple machine that allows things to roll. In other words, the wheel spins, and objects on the axles move more easily along the ground. Think about cars for example!

Pulley: A simple machine that is used to lift heavy objects. They are usually used in sets designed to make the amount of force needed to lift something smaller and easier. Some examples include window blinds, flag poles, cranes, and elevators.

Lever: A simple machine that helps us lift loads with lesser effort. Even though this looks simple there are many things going on in order to lift the object easily. The lever consists of a beam and a fulcrum that the beam rests on. A perfect example of a lever is a see-saw!

Wedge: A simple machine and a tool that is triangular in shape. It is thick on one end and tapers to a thin edge. It is used to push things apart, lift an object, or hold an object in place. Some examples include a doorstop, scissors, axe, and shovel.

Screw: A simple machine that is a special kind of inclined plane. It's basically an inclined plane wrapped around a pole. Screws can be used to lift things or to hold them together. Some examples include screws, lightbulbs, jar lids, and faucets!

Gravity: The force which causes objects to fall to the ground.

Balance: (n) A balance is a device to measure or compare the weight or mass of objects.
(v) To place something in a way that prevents it from falling over, when its weight and gravitational pull are at equilibrium.

Energy: A property of matter that can allow objects to do work. In engineering, we usually consider energy in the forms of *potential energy* and *kinetic energy*. It can be transferred between objects, and converted in form, but it cannot be created or destroyed.