



Glossary

We have tried to make the glossary as understandable and practical as possible without getting stuck in difficult equations and long explanations.

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| A | Angle | The space between two lines or planes that intersect; the inclination of one line to another; measured in degrees or radians. |
| | Area | Area is a quantity expressing the size of a region of space. |
| | Axle | A rod through the center of a wheel, or through different parts of a cam. It transmits force, via a transmission device, from an engine to the wheel in a car or from your arm via the wheel to the axle if you are winding up a bucket on a rope. |
| B | Balanced force | An object is balanced and does not move when all the forces acting on it are equal and opposite. |
| | Belt | A continuous band stretched around two pulley wheels so one can turn the other. It is usually designed to slip if the follower pulley suddenly stops turning. |
| | Buoyancy | Buoyancy is an upward force on an object enabling it to float. If the buoyancy exceeds the weight, then the object floats; if the weight exceeds the buoyancy, the object sinks. |
| D | Driver | The part of a machine, usually a gear, pulley, lever, crank or axle, where the force first comes into the machine. |
| E | Efficiency | A measure of how much of the force that goes into a machine comes out as useful work. Friction often wastes a lot of energy, thus reducing the efficiency of a machine. |
| | Energy | The capacity to do work. You get energy from food. The Ice Hockey Player and Spinning Top get their energy from you. |
| F | Fair testing | Measuring the performance of a machine by comparing its performance under different conditions. |
| | Follower | Usually a gear, pulley or lever driven by another one. It can also be a lever driven by a cam. |
| | Force | A push or a pull. |
| | Friction | The resistance met when one surface is sliding over another, e.g. when an axle is turning in a hole or when you rub your hands together. |
| | Fulcrum | See pivot. |

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| G | Gear | A gear is a toothed wheel. A way to classify gears is by the number of teeth they have, e.g. an 8-tooth gear or a 40-tooth gear. Gears can be used to transfer force, increase or reduce speed, and change the direction of rotary motion. |
| | Gear, crown | Has teeth that stick out on one side, making it look like a crown. Mesh it with a second crown gear or a regular spur gear to turn the angle of motion through 90°. |
| | Gear, worm | A gear with one spiral tooth resembling a screw. Mesh it with another gear to deliver large forces very slowly. |
| | Gearing down | A small gear turns a larger gear and amplifies the force from the effort. But the follower turns more slowly. |
| | Gearing up | A large gear turns a small gear and reduces the force from the effort. But the follower turns more quickly. |
| L | Lever | A lever is a device that makes work easier. It is one of the most widely used of the simple machines. Seesaws, scissors, nail clippers, tongs, pianos, parking meters, pliers and wheelbarrows all use levers to operate. |
| M | Mass | Mass is the quantity of matter in an object. On Earth, gravitational force pulling your matter makes you weigh say 50 lbs. In orbit, you feel weightless – but you still have a mass of 50 lbs. Often confused with weight. |
| P | Pivot | In a seesaw, the pivot point is in the middle. The pivot point does not always have to be in the middle of the lever. In some types or classes of levers, the pivot point may be at one end, such as in a wheelbarrow. |
| | Power | The strength and speed at which a machine does work. |
| | Pulley | A pulley is a simple machine which usually consists of a grooved wheel round which a rope, cable or chain is placed. A pulley is used to transfer force, alter speed or to turn another wheel. |
| R | Resetting | Turning a pointer on a scale back to zero again. For instance, resetting the Measuring Car's scale. |
| | Rotation | Turning or moving about a central fixed point. Rotation is the movement of a body in such a way that the distance between a certain fixed point and any given point of that body remains constant. |
| S | Speed | Speed describes the change in position in a certain period of time. |
| U | Unbalanced force | A force that is not opposed by an equal and opposite force. An object feeling an unbalanced force must begin to move in some way; for instance the unbalanced seesaw. |
| W | Weight | See Mass. |