

SIMPLE MACHINES

GLOSSARY:

- **Block:** The set of pulleys fixed to the rigid support in block and tackle system.
- **Efficiency (η):** The ratio of the useful work done by the machine to the work done on the machine. In other words, it is the ratio of the work output to the work input.
- **Effort (E):** The force applied to an object or machine to cause motion.
- **Force multipliers:** Devices that reduce the amount of force necessary to move an **object, useful** for lifting heavy objects or doing other things that require large amounts of force.
- **Gear:** A mechanical device that transfers rotating motion and power from one part of the machine to another.
- **Inclined plane:** A smooth, rigid surface, inclined at an angle to the horizontal surface.
- **Lever:** A rigid, straight, or bent bar which is capable of turning about a fixed point or an axis.

- **Load (L):** The opposition to applied force, such as a weight to be carried or moved.
- **Mechanical advantage (MA):** The ratio of the load to the effort of the machine.
- **Pinion:** If one gear is larger than the other, then the larger one is called the '**gear**' and the smaller one is called the '**pinion**'.
- **Pulley:** A metallic block or a wooden circular disc having a groove along its rim and capable of rotating about a rod called the 'axle', which passes through its centre.
- **Simple machine:** A mechanical device that changes the direction or magnitude of a force to achieve a certain advantage or by which we can obtain a gain in speed.
- **Speed multipliers:** Devices that increase the speed of, or distance travelled by, an **object, useful** when an object **needs to move a further** distance or at a higher speed.
- **Tackle:** **The set of movable pulleys attached** to the load in block and tackle system.
- **Velocity ratio (VR):** The ratio of the velocity of the effort to the velocity of the load.

- **Work input or input (W_i):** The energy supplied to the machine or the work done on the machine.
- **Work output or output (W_o):** The useful energy obtained from the machine or the useful work done by the machine.