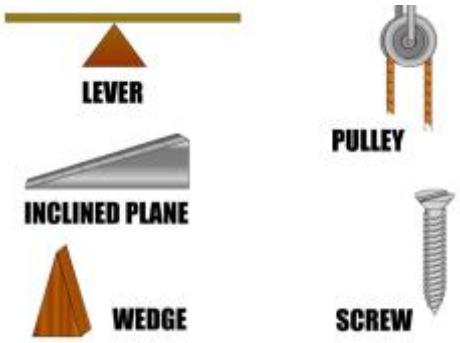
Unit 2: Wheels and Levers



Overview

You will be learning about the basic components of simple machines: how they are assembled, how they operate and how they are used.

Students will be able:

- To explain how rollers can be used to move an object and show the use of rollers in a practical situation.
- To compare the wheel and the roller and identify examples where they are used.
- Construct devices that use wheels and axels while demonstrating and describing their use in model vehicles, pulley systems and gears systems.
- Build and explain the operation of a drive system that uses one or more of the following – wheel to wheel contact, a belt or elastic, a chain and cogs or gears.

- Construct and explain the operation of a drive system that transfers motion from one shaft to a second shaft, where the second shaft is parallel to the first and at a 90° angle to the first.
- Demonstrate ways to use a lever that applies a small force to create a large force as well as applies a small movement to create a large movement.
- Predict how changes in the size of the lever or the position of the fulcrum will affect the force and movements involved.
- Construct models of levers and explain how levers are involved in such devices as: teeter-totters, scissors, pliers, pry bars, tongs, nutcrackers, fishing rods and wheelbarrows.

Vocabulary for the unit:

axel, balance, block and tackle, cog, conservation of energy, driver, driven gear or wheel, effort, energy, force, friction, fulcrum, gear, gears (beveled, worm and rack and pinion), idler, lever, mass and weight, mesh, motion, Newton, perpetual motion, power, pulley, resistance, shaft and work