



Complex Machines

What are Complex Machines?

A complex machine is a device that is made up of two or more simple machines working together to perform more complicated tasks.

- They are capable of doing work more efficiently than individual simple machines.
- The parts of complex machines are often interconnected and function together.

Purpose of Complex Machines

- To perform multi-step or difficult tasks with less time and effort.
- They combine the advantages of different simple machines like levers, wedges, wheels, screws, pulleys, and inclined planes.
- Help in speeding up work, reducing human effort, and increasing productivity.

Examples of Complex Machines in Daily Life

Example 1: Shovel

A shovel is a combination of:


- **Wedge** – to dig or scoop the stones
- **Lever** – the handle helps apply pressure and lift the load

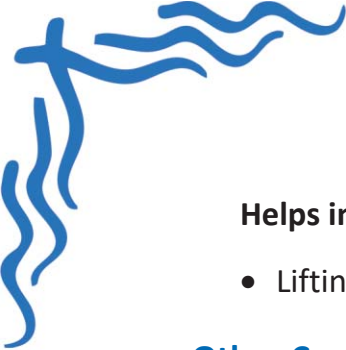
Helps in:

- Digging soil
- Scooping and lifting heavy items (e.g., stones, mud)

Example 2: Wheelbarrow

A wheelbarrow combines multiple simple machines:

- **Lever** – the handles
 - **Wheel and axle** – for rolling movement
 - **Inclined plane** – shape helps support the load
 - **Screws** – hold parts together
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Helps in:

- Lifting and transporting heavy loads like soil, stones, gardening materials

Other Common Examples of Complex Machines:

Complex Machine	Simple Machines Used	Usage
Stapler	Lever, wedge, spring	Joining papers
Vegetable Chopper	Lever, wedge, gear	Cutting and slicing vegetables
Lawn Mower	Wheels and axles, levers, blades (wedges)	Cutting grass in gardens
Bicycle	Levers (brakes), wheels and axles, pulleys, screws	Transportation
Sewing Machine	Wheel and axle, levers, gears	Stitching clothes
Car	Gears, levers, wheels and axles, screws, pulleys	Transportation and mobility

Key Features of Complex Machines

- Made of many interconnected parts.
- Combine two or more simple machines.
- Perform more work with less effort.
- Are commonly used in households, factories, transportation, and agriculture.

Quick Summary

Aspect	Complex Machines
Definition	Made up of two or more simple machines
Purpose	To perform complex tasks easily and efficiently
Examples	Shovel, Wheelbarrow, Bicycle, Sewing Machine, Car
Components	Combine levers, wedges, pulleys, wheels, screws, etc.
Real-World Use	Homes, gardens, schools, transport, industries