

Force and Pressure

Chapter 11: Force and Pressure · Topic 1

Key Concept

A force can start, stop, speed up, slow down, or change the direction of an object's motion, or change its shape.

Forces can be contact forces (like pushing a door) or non-contact forces (like gravity or magnetism) acting without touching.

Pressure is calculated as force divided by area ($\text{Pressure} = \text{Force} \div \text{Area}$), meaning smaller area gives higher pressure for the same force.

Understanding force and pressure helps explain everyday phenomena, like why sharp knives cut easily and why wide tyres reduce sinking in mud.

Quick Revision Notes

- Force: push or pull, changes motion/shape.
- It can start, stop, speed up, slow down.
- Also changes direction of motion.
- Contact forces: pushing a door.
- Non-contact forces: gravity, magnetism.
- $\text{Pressure} = \text{Force} \div \text{Area}$.
- Smaller area = higher pressure (same force).
- This explains knives cutting, tyres in mud.

Practice Questions

- 1 Give an example of a contact force.
- 2 Give an example of a non-contact force.
- 3 Calculate pressure given force and area.
- 4 Discuss why wide tyres help in mud.
- 5 Discuss why a sharp knife cuts more easily than a blunt one.
- 6 Explain force and pressure in your own words.