

CLASS 8

SCIENCE

NCERT SOLUTIONS

NCERT Solutions for Class 8 Science Chapter 5: Exploring Forces – Free PDF Download

Chapter 5 — Exploring Forces — introduces force as a push or pull arising from interaction between two objects, its effects (starting, stopping, changing speed/direction/shape), contact forces (muscular, friction), non-contact forces (magnetic, electrostatic, gravitational), weight vs mass, spring balances, and ...

Contents

NCERT Solutions for Class 8 Science Chapter 5: Exploring Forces

Why This Chapter Matters

Class 8 Science Chapter 5 – Notes and Extra Questions

Chapter 5 — Exploring Forces — introduces force as a push or pull arising from interaction between two objects, its effects (starting, stopping, changing speed/direction/shape), contact forces (muscular, friction), non-contact forces (magnetic, electrostatic, gravitational), weight vs mass, spring balances, and floating/sinking via buoyant force. This chapter has a full 10-question end-of-chapter exercise ('Keep the Curiosity Alive') plus extensive activity-based in-text questions. Below are complete, verified answers, sourced directly from the official NCERT PDF. These Class 8 Science Chapter 5 solutions are also useful as quick revision notes before exams.

NCERT Solutions for Class 8 Science Chapter 5: Exploring Forces

Exercise: Keep the Curiosity Alive

1. Match Column A (type of force) with Column B (example): Muscular force / Magnetic force / Frictional force / Gravitational force / Electrostatic force.

Muscular force → a child lifting a school bag. Magnetic force → a compass needle pointing North. Frictional force → a cricket ball stopping on its own before the boundary. Gravitational force → a fruit falling from a tree. Electrostatic force → a rubbed balloon attracting hair strands.

2. True or False: (i) A force is always required to change the speed of motion of an object. (ii) Due to friction, the speed of a ball rolling on flat ground increases. (iii) There is no force between two charged objects placed at a small distance apart.

(i) **True.** (ii) **False** — friction opposes motion, so it decreases speed. (iii) **False** — an electrostatic force (attractive or repulsive) exists between charged objects even without contact.

3. Two balloons rubbed with a woollen cloth are brought near each other. What happens, and why?

They **repel** (move apart) — rubbing both with the same cloth gives them the same kind of static charge, and like charges repel; this is electrostatic force, a non-contact force.

4. A coin sinks in water but a bigger wooden block floats. Explain.

Both experience gravity pulling down and an upward buoyant force from the water. For the coin, the buoyant force is smaller than its weight, so it sinks. For the wooden block, the buoyant force equals or exceeds its weight (it displaces enough water), so it floats — per Archimedes' Principle.

5. A ball thrown upward slows, stops momentarily, then falls. Name the force(s) acting and their direction during (i) upward motion (ii) downward motion (iii) at the topmost position.

In all three phases, only **gravitational force** acts, always **downward**. (i) Opposes the upward motion, decelerating the ball. (ii) Acts with the motion, accelerating the ball. (iii) Still acts downward even though velocity is momentarily zero — which is why the ball then falls.

6. A ball rolls down an incline and stops at point A on a horizontal surface. How can you make it stop (i) before A (ii) after crossing A?

Change the **friction** on the horizontal surface. (i) Increase friction (rougher surface, e.g. sand or cloth) so it stops sooner. (ii) Decrease friction (smoother surface, e.g. glass or oil) so it travels farther before stopping.

7. Why do we sometimes slip on smooth surfaces like ice or polished floors?

Smooth/polished surfaces have very few irregularities, so there's minimal interlocking between footwear and floor, greatly reducing friction — the grip that normally prevents sliding is lost.

8. Is any force being applied to an object in non-uniform motion?

Yes — non-uniform motion means speed and/or direction is changing, and no such change can happen

without a force acting on the object.

9. An object's weight on the Moon becomes one-sixth of its weight on Earth. What causes this? Does its mass also become one-sixth?

This is caused by the Moon's gravitational pull being about one-sixth as strong as Earth's; weight depends on the local gravitational force. **Mass does NOT change** — mass is the fixed amount of matter in an object and stays the same everywhere.

10. Three same-size, same-shape objects of different materials dip to different depths in water. If their weights are w_1 , w_2 , w_3 , which order is correct?

$w_3 > w_1 > w_2$ — the object that sinks deepest is heaviest (w_3), the one that floats highest is lightest (w_2), matching the standard NCERT figure for this activity.

Key In-Text Activities

What are the effects of force?

A force can set a resting object in motion, change its speed, change its direction, change its shape — or cause a combination of these; no such change happens without a force.

How many objects are involved when a force acts?

At least two — force always arises from an interaction between two objects (e.g. hand and bicycle, bat and ball).

What makes friction greater or smaller?

Friction is greater on rough surfaces (more interlocking irregularities) and smaller on smooth/wet surfaces (water fills the irregularities, reducing interlocking); it also varies by the specific surfaces in contact.

Do magnets need to touch to exert force?

No — magnetic force is a non-contact force; a floating magnet demonstration shows repulsion between like poles without any contact.

What causes objects to attract after rubbing (electrostatic force)?

Rubbing transfers charge; the charged object then attracts uncharged light objects (like paper bits), and two similarly-charged objects repel each other while oppositely-charged objects attract — showing there are two kinds of charge (positive and negative).

What is the difference between weight and mass?

Mass is the fixed amount of matter in an object (g/kg), constant everywhere. Weight is the gravitational force pulling the object toward a planet (in newtons, N), and varies by location — e.g. 1 kg weighs 10 N on Earth but only 1.6 N on the Moon.

Why does an object feel lighter in water, and why do some things float while others sink?

Water exerts an upward buoyant force (upthrust) on submerged objects. If this force equals or exceeds the object's weight, it floats; if not, it sinks — this is Archimedes' Principle.

Why This Chapter Matters

Force, weight/mass, and buoyancy are foundational physics concepts used throughout later chapters on pressure, motion, and fluids, and directly explain everyday phenomena from friction on roads to why ships float.

Class 8 Science Chapter 5 – Notes and Extra Questions

Along with these NCERT Solutions, students can also use the [Class 8 Science Chapter 5 Extra Questions](#) and [Class 8 Science Chapter 5 Revision Notes](#) for quick revision and extra practice.

© NCERTBooks.org — your one-stop source for Class 1 to 12 NCERT Books, Solutions, Extra Questions, Revision Notes, Formulas Handbooks and more. Visit ncertbooks.org for the latest chapters as they are published.