CLASS 9 SCIENCE NCERT SOLUTIONS

NCERT Solutions for Class 9 Science Chapter 6: How Forces Affect Motion – Free PDF Download

Chapter 6 of Class 9 Science Exploration is How Forces Affect Motion. It builds on the previous motion chapter by asking what actually causes motion to start, stop, or change — covering balanced and unbalanced forces, friction, and Newton's three laws of motion. These Class 9 Science Chapter 6 solutions are also u...

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Balanced and Unbalanced Forces

When two or more forces acting on an object cancel out (equal in magnitude, opposite in direction), they are **balanced forces**, and the object's state of motion does not change. When forces do not cancel out, they are **unbalanced forces**, and they change the object's speed, direction, or both.

Friction

Friction is the force that opposes relative motion between two surfaces in contact. It depends on the nature of the surfaces and the force pressing them together. Friction can be reduced using lubricants or by making surfaces smoother (or using rollers/wheels), and increased by roughening surfaces (e.g. tyre treads for grip).

Newton's First Law of Motion

Also called the **law of inertia**: an object at rest stays at rest, and an object in motion continues in motion at constant velocity, unless acted upon by an unbalanced (net) force. **Inertia** is an object's natural tendency to resist a change in its state of motion; more mass means more inertia.

Newton's Second Law of Motion

The rate of change of momentum of an object is directly proportional to the applied unbalanced force, and takes place in the direction of the force. This gives the equation **F = ma** (force = mass × acceleration).

Newton's Third Law of Motion

For every action, there is an equal and opposite reaction. These action-reaction force pairs act on two different objects, simultaneously, and never cancel each other out (since they act on different bodies).