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Force

Understanding Force: The Push or Pull in Physics

DEFINITION

> Force is a push or pull acting on an object. It can cause an object to move, stop, or change direction.

KEY CONCEPTS

Types of Force

Forces can be classified into contact forces, like friction, and non-contact forces, like gravity.

Newton's Laws

Newton's laws describe how forces affect motion, including inertia and action-reaction pairs.

Net Force

The net force is the total force acting on an object, determining its acceleration.

Balanced vs Unbalanced

Balanced forces do not change an object's motion, while unbalanced forces cause acceleration.

Units of Force

Force is measured in newtons (N), where 1 N is the force needed to accelerate 1 kg at 1 m/s².

EXAMPLES

→ Pushing a shopping cart forward.

→ Gravity pulling an apple to the ground.

→ A magnet attracting a paperclip.

MEMORY TIPS

★ Remember 'F = ma' for force calculation (Force equals mass times acceleration).

★ Think of 'push and pull' to recall the definition of force.

★ Use the acronym 'NICE' for Newton's laws: Newton, Inertia, Change, Equal and Opposite.

COMMON MISTAKES

✗ Confusing mass with weight when discussing force.

✗ Neglecting to consider direction when calculating net force.

✗ Assuming balanced forces always mean no motion.

QUICK RECAP

Force is a fundamental concept in physics that describes interactions causing motion. Remember the types of forces and Newton's laws to understand how they affect objects in motion.