

Name _____



Newton's Second Law

Newton's Second Law of Motion, often called the law of acceleration, explains how the speed and direction of an object change when a force is applied. This law states that the acceleration of an object is directly proportional to the net force acting on it and inversely proportional to its mass.

In simple terms, it tells us that if you push or pull something harder, it will accelerate more, and if it's heavier, it will accelerate less for the same force.

Example: Imagine you have two wagons of different masses, one heavy and one light. If you push both wagons with the same force, the lighter wagon will accelerate faster, while the heavier one will accelerate more slowly. This happens because the second law of motion is at work.

Real-world application: When you kick a soccer ball, the force of your kick makes it accelerate. If you kick it harder, it accelerates faster. However, if you tried to kick a heavy medicine ball with the same force, it would accelerate much more slowly because of its greater mass.

Questions

1. What does Newton's Second Law of Motion explain?
2. How does the acceleration of an object change concerning the force applied to it?
3. Describe the relationship between the mass of an object and its acceleration according to this law.
4. Give an example of an everyday situation where this law is at play.
5. Why does a lighter wagon accelerate faster than a heavier one when pushed with the same force?