

Name _____



Balancing Forces

In some situations, forces can balance each other out, causing no change in motion. This is known as equilibrium. When forces are balanced, an object remains at rest or continues to move at a constant speed in a straight line. It's like a tug-of-war where both teams pull with equal strength, and the rope doesn't move.

Example: Imagine you're pushing a book across a table. If you push with a certain force, and the friction between the book and the table provides an equal and opposite force, the book won't move; it's in equilibrium.

Real-world application: When you ride your bike at a constant speed on a flat road, the forces of your pedaling and air resistance balance out. As a result, you don't speed up or slow down; you stay at the same speed.

Questions

1. What is equilibrium?
2. When are forces balanced in an object?
3. Provide an example of forces being balanced in everyday life.
4. Explain why a book doesn't move when you push it with a certain force.
5. How does equilibrium relate to riding a bike on a flat road?