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Student:

## Newton's Third Law of Motion

### Introduction:

Newton's Third Law of Motion states that for every action, there is an equal and opposite reaction. This law is fundamental to understanding how objects interact with each other. Let's explore this law and its implications.

### Newton's Third Law of Motion:

Newton's Third Law can be summarized as follows:

"For every action, there is an equal and opposite reaction."

This means that when one object exerts a force on another object (action), the second object exerts an equal force in the opposite direction (reaction).

### Questions:

#### Problem 1: Walking

Consider a person walking on a flat surface. Explain how Newton's Third Law is at play during each step they take. What are the action and reaction forces involved in this motion?

#### Problem 2: Swimming

Imagine a swimmer pushing against the water to move forward while swimming. Describe how Newton's Third Law relates to the swimmer's movements. Identify the action and reaction forces in this scenario.

#### Problem 3: Rocket Launch

During a rocket launch, the rocket expels high-speed exhaust gasses downward, which propels the rocket upward into space. Explain how Newton's Third Law is demonstrated in this situation. What are the action and reaction forces at play during a rocket launch?