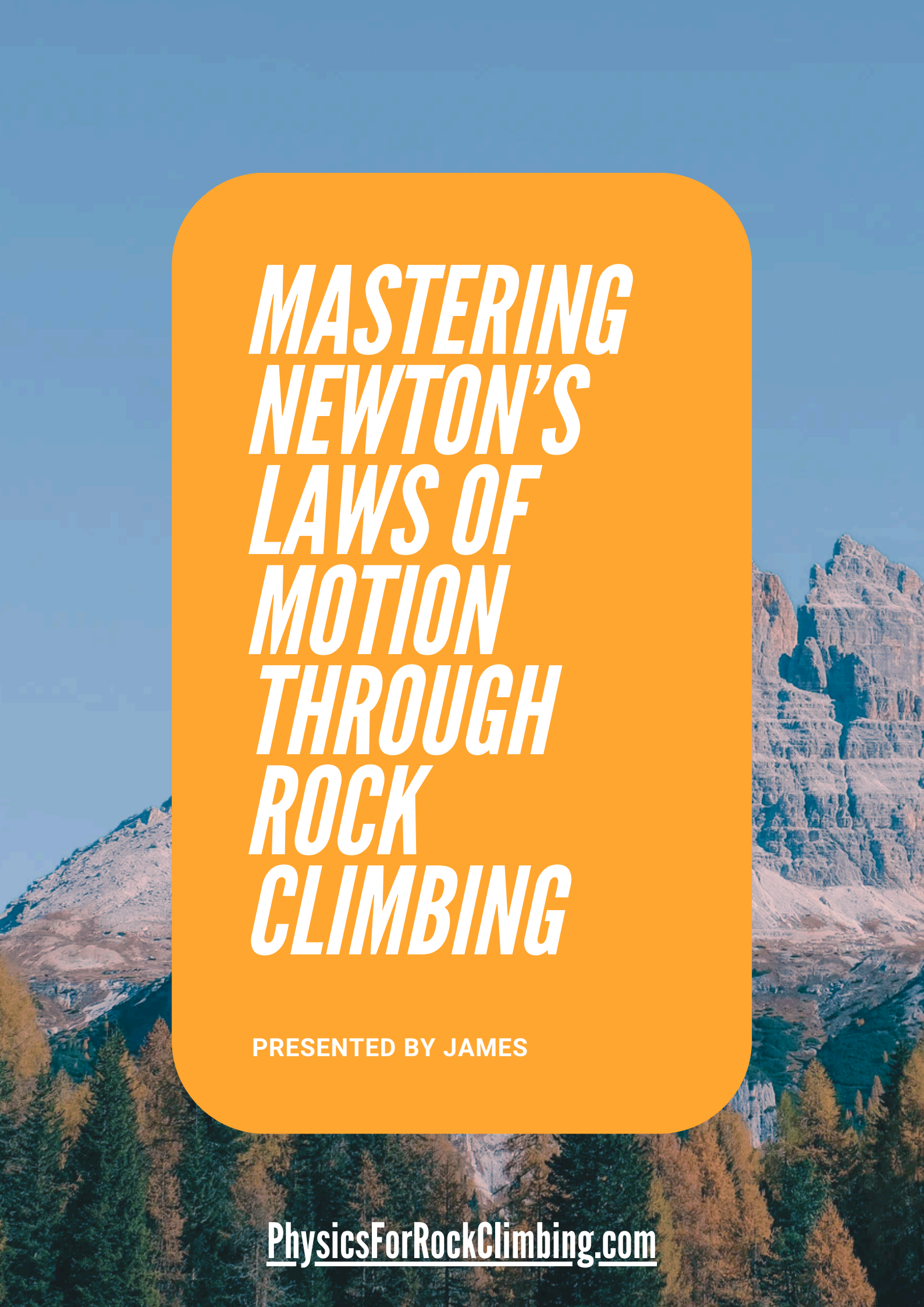




MASTERING NEWTON'S LAWS OF MOTION THROUGH ROCK CLIMBING

PRESENTED BY JAMES

PhysicsForRockClimbing.com

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**Hey everyone! I'm James,
and in this series, I'm
breaking down Newton's
Laws of Motion using real
examples in rock climbing to
make these concepts easier
to understand.**

**Physics can seem tough, but
connecting it to something
relatable like climbing makes
learning much simpler.**

***WELCOME TO PHYSICS
MADE SIMPLE!***

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INTRODUCTION

WHY ROCK CLIMBING IS PERFECT FOR LEARNING PHYSICS



[Watch the Introduction](#)

In this intro, I'll show you why rock climbing is such a great analogy for learning Newton's Laws of Motion. We'll set the stage for how each law applies to movement, force, and balance in climbing.

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NEWTON'S FIRST LAW: UNDERSTANDING MOTION AND INERTIA



CONCEPT

An object in motion stays in motion, and an object at rest stays at rest unless acted upon by an external force.

Watch Newton's
First Law



In this video, I explore how Newton's First Law plays out in rock climbing. You'll learn what forces go into keeping a climber in place and why a climber at rest or in motion won't change states without an external push or pull.

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NEWTON'S SECOND LAW: THE FORCE BEHIND LANDING

CONCEPT

Force = Mass x
Acceleration ($F = ma$)



[Watch Newton's
Second Law](#)



Here, we dive into the relationship between force, mass, and acceleration as it applies to landing in rock climbing. I'll show you how Newton's Second Law affects your landing force, depending on the climber's mass and acceleration. You'll get insights into why landing techniques matter and how to control your descent for safety and efficiency.

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NEWTON'S THIRD LAW: ACTION AND REACTION ON THE WALL



CONCEPT

For every action,
there's an equal and
opposite reaction.

[Watch Newton's
Third Law](#)



In this segment, I explain how
Newton's Third Law works in
climbing. Each push against the wall
creates an opposite force, helping you
ascend. Understanding these action-
reaction forces allows you to climb
with better control and efficiency.

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My name is James Miller, and, like many climbers, I once found physics overwhelming. Learning it took time and hands-on experience with real climbing scenarios. Since 2022, I've been a rock climber and robotics enthusiast, and relating physics concepts to climbing transformed my understanding, safety, and performance. Now, I connect with fellow climbers, making physics both relatable and fun.



Overcoming Challenges in Physics Education
Creating this project wasn't easy. Physics is vast, and many climbers don't know where to start. Reflecting on my journey and the struggles of fellow climbers, I developed a method to simplify complex ideas through real-world climbing examples, making it easier for you to learn and apply physics in your sport.

ABOUT JAMES