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Tracking the Swing: Unveiling the Physics of Increasing Amplitude

Thursday 3 July 2025 10:00 (20 minutes)

The motion of a pendulum, particularly a swing, is a classic example of periodic motion that follows fundamental physical principles. Understanding the factors that affect the amplitude of a swinging object is essential for understanding a wide range of applications. This paper investigates the dynamics of a simple swinging system, analyzing key aspects such as x vs. t, v vs. t, and energy vs. t graphs using Tracker software. It demonstrates the concepts of energy conservation, damping forces, and the influence of external driving forces, such as human input, in amplifying the swing's motion. By examining these factors, the paper provides a comprehensive insight into the mechanics that govern swing amplitude.

Education level

All ages

Physics topic

Contemporary and modern physics

Research focus

Active learning

Research method

Other

Organizing preference criteria

Physics topic

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