

## Physics List of Video Resources

The video resources in this package are divided into two categories:

1. The first category, “**Program Videos**,” lists archived versions of our live, interactive student programs that explore multiple concepts and topics related to exploring physics.
2. The second category, “**Topic Videos**,” includes short videos that deal with a specific topic, issue, event, or person related to physics. Some of the “topic videos” listed here are also featured in one of the archived live programs. If so, the name of the archived program video is included in parentheses.

More information on each video, including a description of its content, grade levels targeted, and any teacher tools or student tools related to it, can be found on its video play page by clicking on its title below. Time length for each video is provided below and on its video play page.

### Program Videos:

Physics 8: The Science Behind Bowling (57:25)

Physics 9: The Science Behind Roller Coasters (43:02)

### Topic Videos:

Engineering 24: How do you determine the initial height of a roller coaster to ensure that there is enough energy for the coaster to make it from beginning to end? (0:59—also seen in Physics 9: The Science Behind Roller Coasters)

Engineering 25: If a coaster needs more energy in the middle of the track, how do designers accomplish this? (0:32—also seen in Physics 9: The Science Behind Roller Coasters)

Engineering 28: How do brakes on a roller coaster work to dissipate energy? (1:47—also seen in Physics 9: The Science Behind Roller Coasters)

Engineering 36: Do coasters where you’re hanging rather than riding in a car have to be designed differently? (0:51—also seen in Physics 9: The Science Behind Roller Coasters)

Engineering 38: Is there a difference when designing a wooden roller coaster versus a steel one? Which do you prefer to design? (1:26—also seen in Physics 9: The Science Behind Roller Coasters)

Physics 1: Nature of a Bowling Ball (2:13—also seen in Physics 8: The Science Behind Bowling)

Physics 2: Nature of a Bowling Pin (2:01—also seen in Physics 8: The Science Behind Bowling)

Physics 3: The Importance of the Pendulum Motion (0:55—also seen in Physics 8: The Science Behind Bowling)

Physics 4: Timing Your Approach for Best Success (0:36—also seen in Physics 8: The Science Behind Bowling)

Physics 5: How to Create Rotation on the Ball (1:25—also seen in Physics 8: The Science Behind Bowling)  
Physics 6: Reasons for a Two-Hand Release (2:12)  
Physics 7: Margin of Error for a Strike and a Spare (1:02)  
Physics 10: Oil and Friction (1:24—also seen in Physics 8: The Science Behind Bowling)  
Physics 11: Newton's First Law of Motion (1:19—also seen in Physics 8: The Science Behind Bowling)  
Physics 12: Newton's Second Law of Motion (1:37—also seen in Physics 8: The Science Behind Bowling)  
Physics 13: Velocity and Acceleration (1:24—also seen in Physics 8: The Science Behind Bowling)  
Physics 14: Newton's Third Law of Motion (1:01—also seen in Physics 8: The Science Behind Bowling)  
Physics 15: Finding the Average Velocity (5:39—also seen in Physics 8: The Science Behind Bowling)