This video is ten seconds long. It would take much longer to set up in lab, and it would be difficult to make accurate measurements.
This video could simply not be done in lab
This looks like something that could be done in lab, but most students end up leaning in such a way that it doesn’t show momentum conservation.
This 19 second video allows students to accurately and intuitively measure the speed of sound in air.
This is soooo much cooler than the typical mass on a spring problem.
DMV’s even work for really simple concepts
Imagine this as a word problem.
Using Direct Measurement Videos to Teach Introductory Mechanics

AAPT Summer Meeting
July 29, 2014
Minneapolis!

Matthew Vonk  University of Wisconsin River Falls
Peter Bohaceck Henry Sibley High School
DMV’s are short videos of real events that are shot in such a way that students can directly measure important quantities.
Why Use DMV’s?
They’re fun
They’re real
They’re free
They are easy to use
They come in a variety of levels
More than just mechanics
Students start to notice other things
Students ask about uncertainty
We realize there are lots of other options. ...

Quality explanations & entertaining

Infinitely changeable parameters.

Easy to customize
Highly portable

Students take ownership
Coming Soon: New Tools that encourage science practices

The Joly Photometer
A method for comparing the brightness of two sources of light.

Large bulb
10 identical small bulbs
The Joly Photometer

A method for comparing the brightness of two sources of light.

Large bulb

10 identical small bulbs

Pick a Video: Introduction
Marble Collides with Pendulum

80 cm
70 cm
Marble Collides with Pendulum
Video Library

Each video below links to a page with several file format options and some suggestions for teaching library.

Jump down to:

One Dimensional Motion | Two Dimensional Motion | Forces and Motion | Rotation | Impulse and Momentum | Sound | Light

One-Dimensional Motion

How fast is that? Ice skaters 1
How fast is that? July 4th cannon
How fast is that? Ping pong ball cannon
How fast is that? Roller coaster 1
Acknowledgements

Henry Sibley Warriors
American Institute of Physics
UWRF
NSF

SERC - the Science Education Resource Center at Carleton College
Award #1245268
Using Direct Measurement Videos to Teach Introductory Mechanics

AAPT Summer Meeting
July 29, 2014
Minneapolis!

Matthew Vonk  University of Wisconsin River Falls
Peter Bohacek Henry Sibley High School
• http://www.hispanicphysicists.org/study/word.html