

Understanding Version

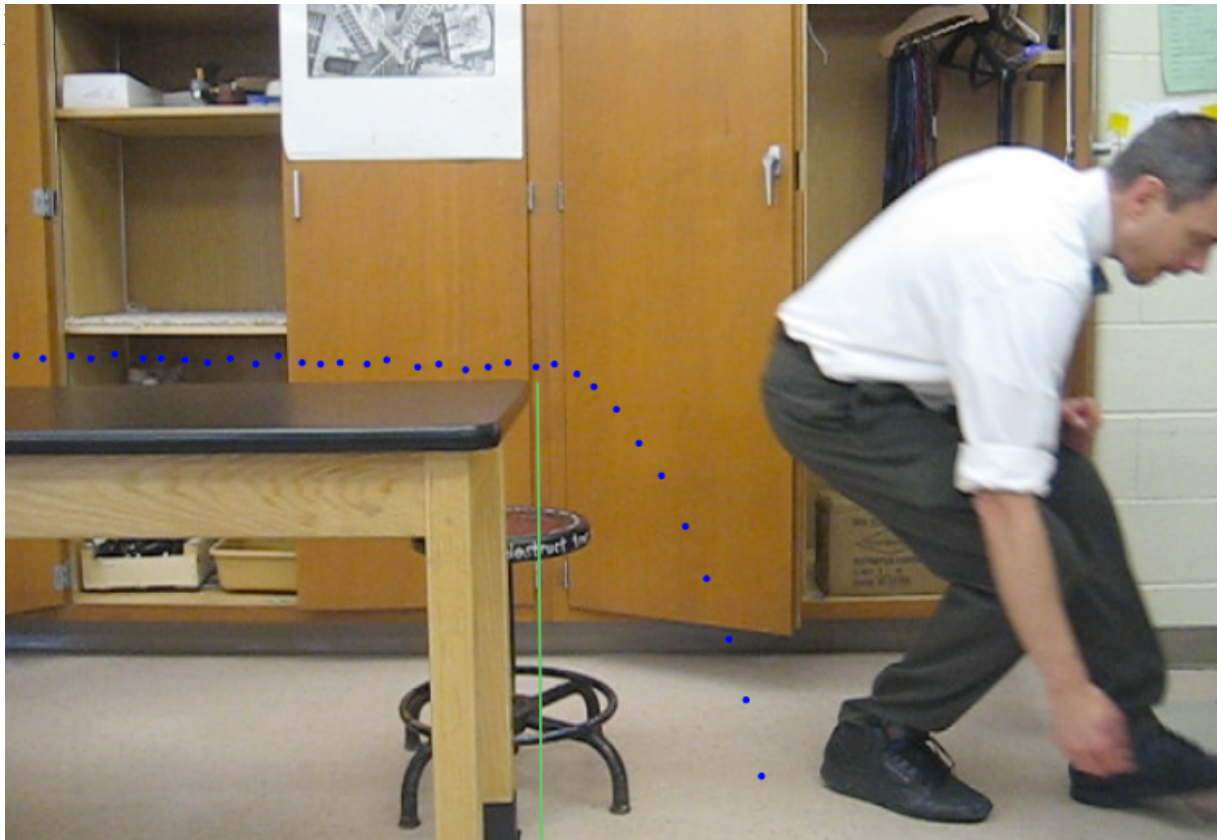
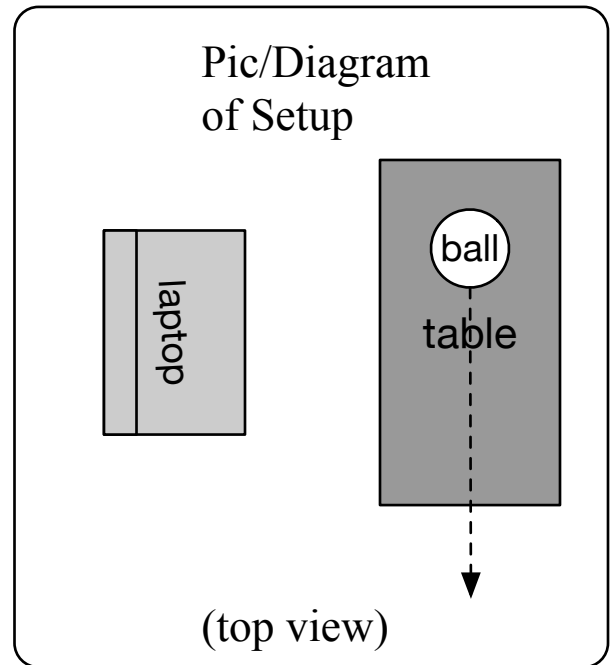
PURPOSE: To use Logger Pro to determine the motion of, and net forces on, an object.

MATERIALS:

Ball, Table, Laptop with Logger Pro

Procedure:

- 1) Set up the laptop so that it is filming from the side.
- 2) Start Logger Pro in video capture mode.
- 3) Roll the ball across the table and let it go off the table.
- 4) Stop Logger Pro video capture mode.



ABCD ANALYSIS: TOP OF THE TABLE

A: On top of the table, the ball was doing a constant speed and there was no Net Force.

C: On top of the table, the dots are mostly the same distance apart.

B: When dots are the same distance apart, the object is moving at a constant speed. According to the First Law of Motion, constant speed requires no Net Force.

D: There is only one line of evidence, and the spacing in the dots do vary a little, so the conclusion is not as strong as it could be.

ABCD ANALYSIS: OFF OF THE TABLE

A: Off of the table, the ball was speeding up and there was a Net Force.

C: Off of the table, the dots mostly get farther and farther apart.

B: When dots get farther and farther apart, that indicates a speed up. According to the First Law of Motion, changing speed requires a Net Force.

D: There is only one line of evidence, and not all the spaces are larger than the previous space, so the conclusion is not as strong as it could be.