Horizontally and Vertically Dropped Balls

Estimated Time for Activity: ~5 minutes

Optional Objectives:
The students will:

- Understand that the effect of gravity only affects vertical motion
- Understand the difference of vector quantities (*i.e., x- and y- velocity)*

Materials:

- Spring-loaded apparatus
- Two ball bearings (preferably of the same size and mass)

Optional Vocabulary:

- Vector
- Gravity

Procedures:

- Unpack the apparatus.
- Place both balls on their respective side of the apparatus.
- Explain that when the trigger is released, that one ball will be shot directly out horizontally (*i.e., initial y velocity is 0)* and the other ball dropped completely vertically.
- Ask which will hit the ground first.
- Pull the trigger.

Optional Post-Activity Question(s):

- Why did both balls hit at the same time?