The big take away today: Distance is the total length that the object travels. Displacement (a vector) is the shortest length between the start and end AND includes the direction of motion. The tennis ball bouncing against the wall was a way to practice this in 1 dimension. The wind-up toy was a practice with 2 dimensions.

<https://www.youtube.com/watch?v=04bki-87C60>

I wanted the kids to know that Physics is a huge subject and Classical Mechanics is only a small part.

<https://www.youtube.com/watch?v=ZihywtixUYo>

I highlighted the Factor-Label Method

<https://www.youtube.com/watch?v=cGK0fVPQuEI&feature=share>

I touched on Vector addition with the high school students. They can use Pythagorean theorem and Trig to calculate the displacement. This is challenging and not every student can handle it. Everyone can graph problems and measure the magnitude of the displacement with a ruler and the angle with a protractor.

<http://www.physicsclassroom.com/class/vectors/Lesson-1/Vector-Addition>

<https://www.youtube.com/watch?v=l8-bnZh8Zuc>