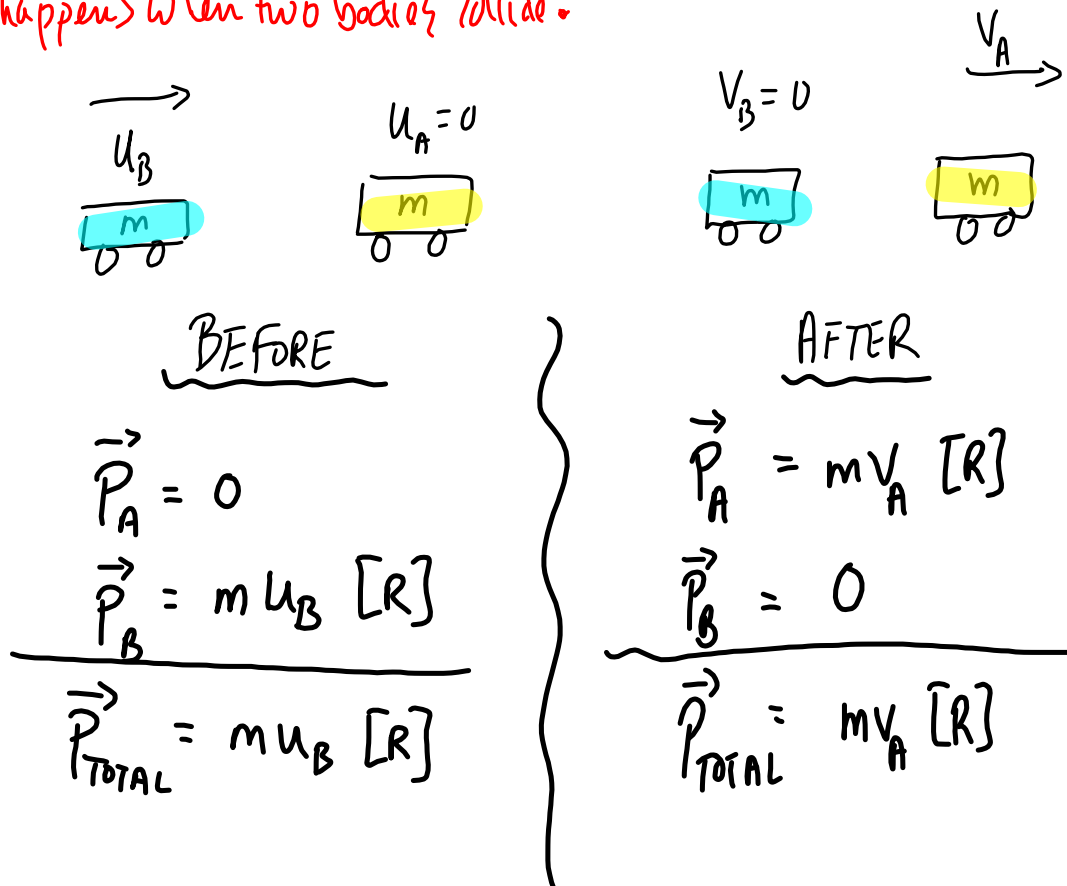


What happens when two bodies collide?



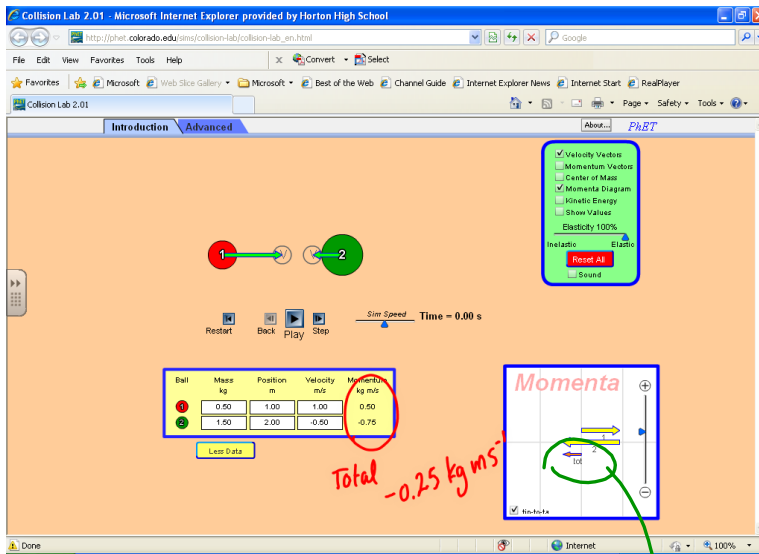
Law of conservation of momentum:

$$\vec{p}_{TOTAL} (BEFORE) = \vec{p}_{TOTAL} (AFTER)$$

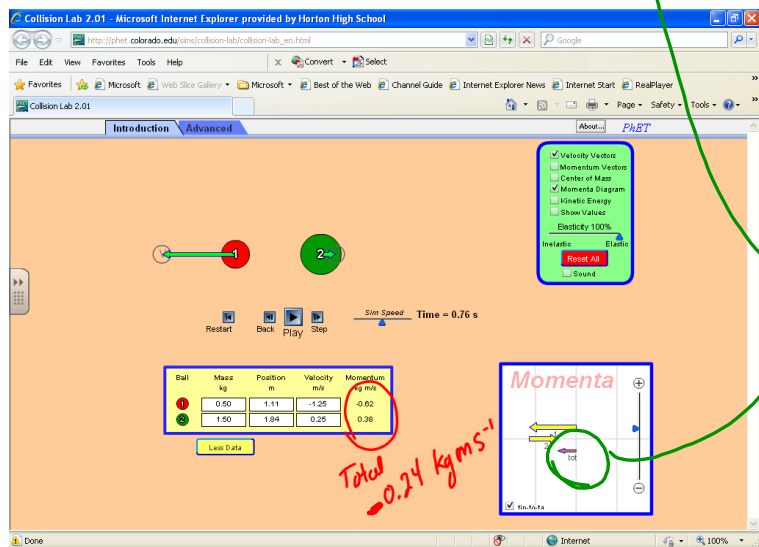
(in an isolated system)
(neglecting outside forces like friction)

$$\cancel{m} u_B [R] = \cancel{m} v_A [R]$$

$$u_B [R] = v_A [R]$$



BEFORE collision
 $p_{\text{total}} = -0.25 \text{ kg m s}^{-1}$



AFTER collision
 $p'_{\text{total}} = -0.24 \text{ kg m s}^{-1}$

ALSO note the momenta diagram

the total momentum vector is the sum

In all 8 of the collisions you investigated, the total momentum was the same both before and after the collision (true even when the bodies stuck together or even when a 2D collision or even when more than 2 bodies involved)