

OPEN RESPONSE #6: ENERGY & MOMENTUM

On a smooth, level surface, a red marble of mass 0.02 kg moving at 2.0 m/s collides with a stationary yellow marble of equal mass. After the collision, the red marble stops completely, and the yellow marble moves in the direction the red marble was moving.

- a. Calculate the momentum of both marbles before the collision. Show your calculations and include units in your answer.
- b. Calculate the momentum of both marbles after the collision. Show your calculations and include units in your answer.
- c. If the velocity of the red marble doubles, how will the velocity of the yellow marble change after the collision?
- d. If the red marble had **more** mass than the yellow marble, how would the momentum of the yellow marble change after the collision?