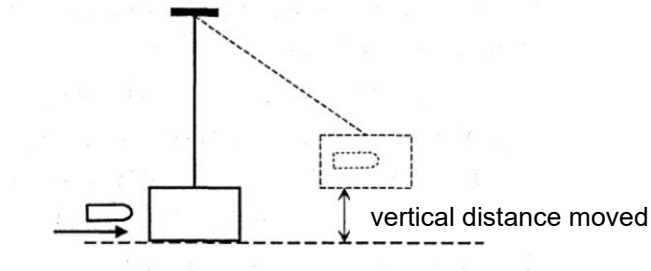


- 5 A small plastic bullet of mass m is fired horizontally into a suspended block of wood of mass M and becomes embedded in the block, which rises up as shown in the diagram below.

Which of the following statements regarding the bullet and the wooden block is correct?



- A** The total mechanical energy of the bullet and block is conserved because they move with the same velocity after the collision.
- B** The gravitational potential energy gained by the block is equal to the loss in kinetic energy by the bullet.
- C** There is heat produced in the collision because the collision is inelastic.
- D** The total horizontal momentum of the bullet and block is not conserved because there is a resultant horizontal force acting on them.