

# Momentum and its Conservation

1. Describe the Law of Conservation of Momentum.
2. How could a fly have the same momentum of a bird?
3. What force is applied to a 79.0 kg rock if it's traveling at 72.0 km/hr and hits a wall and comes to rest in 0.0130 s? b) What is the force if a thick piece of foam increases the time to 0.360 s?
4. Car A has a mass of 875 kg and a velocity of 27 m/s. Car A collides with car B (of mass 776 kg) which is stationary. A) What is the velocity of the cars after they collide if they intertangle and move off together?..b) What is the velocity of B if car A stops dead after the collision?...c) What is the velocity of B if A rebounds at 11.0 m/s after the collision?
5. A 38.0 g bullet strikes a stationary 1.20 kg block of wood. After the impact the bullet-wood system moves off at 15 m/s. What is the velocity of the bullet before the collision?
6. A 5.6 kg ball moves at 4.2 m/s and strikes a similar ball that is stationary. After the collision the second ball moves upward at 67 degrees. What is the velocity of the two balls after the collision?
7. A 15 kg mass moving at 13 m/s strikes a 34 kg stationary plate and imbeds in it. How long does it take a 4.7 N force to stop the coupled objects after the collision?
8. A 54 kg person jogs at 12 km/hr and suddenly trips and slows to a stop in 2.3 s. a) What is his change in momentum? B) What impulse cause this? c) What force caused this?