1. Explain why the total momentum of two objects moving in different directions can be smaller than the individual momentum of each object, but the combined kinetic energy is always larger than the kinetic energy of either object.

2. Is the kinetic energy of a system conserved when two objects collide and stick together? What about the momentum of the system? Justify your answers!

3. A truck with a mass of 10,000 kg hits a stationary car with a mass of 750 kg. If the truck was traveling at 15 m/s and the crash makes the car and truck stick together what is the final velocity of the car? Ignore friction with the road.

4. How much kinetic energy was lost during the above collision? What percentage of the initial kinetic energy of the truck was lost during the collision?