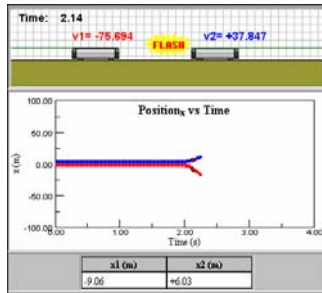


Worksheet for Exploration 8.6: An Explosive Collision



The system's total kinetic energy is increased in a 1200 J explosion in the animation (position is given in meters and time is given in seconds). [Restart](#).

Use a mass ratio of 1:2 for the following (a,b,c,d). (*The initial loadup conditions*).

a. Draw energy diagrams for the system before and after the explosion.

b. What percentage of the explosion's energy is converted to kinetic energy?

%Energy Converted= _____

c. What percentage of the explosion's energy (the initial 1200J) is recoverable?

d. Is the process shown in the simulation reversible?

Vary the mass of the left cart from 0.1 kg to 1.0 kg for the following questions.

- e. Does the larger or the smaller mass receive the most energy?
 - i. Using conservation of momentum only, predict the ratio of the smaller masses Kinetic energy to that of the larger mass.

 - ii. How does this compare with your measurements.

- f. Does the larger or the smaller mass receive the most momentum?

- g. Does the ratio of the two masses have any effect on the total resulting kinetic energy?

- h. Does the ratio of the two masses have any effect on the recoverable energy?