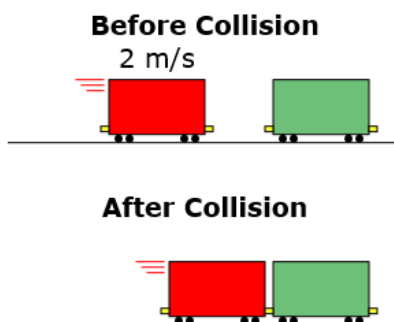


## High School Practice Test Items

Item	Grade	PE	SEP	DCI	CCC	DOK
23	High School	HS-PS2-2	5. Using Mathematics and Computational Thinking	PS2.A Forces and Motion	4. Systems and System Models	2

**ILCS:** Mathematically determine the properties of the system using the conservation of momentum of objects in the system.

A railroad car with a mass of 90,000 kg is traveling along a straight, horizontal track at a constant speed of 2 m/s. The car collides with a second railroad car, also with a mass of 90,000 kg, that is initially at rest. The railroad cars stick together after the collision, as shown in the figure.



What is the speed of the two railroad cars immediately after the collision?

- Ⓐ 0.5 m/s
- Ⓑ 1 m/s
- Ⓒ 2 m/s
- Ⓓ 4 m/s

**Key:** B (1 point)