

Carson's Bart Ride (Force and Inertia)

Name: _____

Date: _____

Period: _____

1) Carson is Riding BART to the Oakland Museum with his aunt, a painter and musician, who is determined to expose the young man to some culture. Carson doesn't go anywhere without his basketball, and today is no exception. The ball is on the floor next to his feet while the train is at rest in the station. Suddenly, the train accelerates forward.

a) Predict and describe the motion of the ball as the train accelerates.

b) Did a force act on the ball, causing it to move? If yes, what force? If no, why did it move?

2) Carson leaps up and chases his basketball. He returns to his seat, placing the ball in front of one of the seat legs so that it can't roll backwards again. Carson relaxes once again, until the train slows down rapidly coming into the next station.

a) predict and describe the motion of the ball as the train slows down.

b) How do you explain the behavior of the ball this time?

3) Carson again chases the ball, and when he returns to his seat he confidently places it in front of the seat leg again. His auntie gives him that "don't you ever learn?" look, but Carson just smiles smugly. He slouches further down in the seat, waiting for the train to leave the station, knowing he can relax until just before the next station.

a) Why is Carson so smug? What has he learned? Predict and describe the motion of the ball.

b) How do you explain the motion of the ball now?