

Name:

Partner:

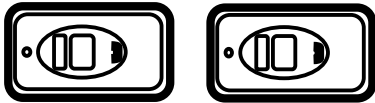
Teacher:

Waterstreet Cab Co.**QUALITATIVE QUESTIONS****HFP**

1. For each situation below, you will describe the velocity (direction and speed) of each car before and after a collision by drawing velocity vectors on the appropriate dots:
- a fast car hits a car that is not moving.



before



after



- a fast car rear-ends a slow car.

before



after



- a car hits the wall.

before



after



2. When you drive forwards and collide with a stationary car, are you **pushed** out of your seat? Explain.

3. How is electrical energy transferred to the bumper cars? Draw a circuit that includes the following components—the floor, the ceiling, the bumper car and the electrical energy source.

4. a. How does the material that the bumpers are made of affect the acceleration of the cart during a collision?

5. A system consists of two cars and their surroundings. When the two cars collide:
 - a. Compare the total energy in the system before the collision with the total energy in the system after the collision.

 - b. Is the kinetic energy before a collision always equal to the kinetic energy after the collision? Explain your answer.