

SC 130 Physical Science Quiz 03 • Name:



- _____ What is a law?
- _____ What is a duck?
- _____ If one marbles collides with a line of five marbles on a ruler track, how many marbles are ejected and roll on off the track?
- _____ If three marbles collide with a line of five marbles on a ruler track, how many marbles are ejected and roll on off the track?
- Why do you think the marbles know what to do?
- Explain how the speed of the marbles colliding with a line of marbles on a marble track affects the speed of the marbles ejected from the line.
- _____ A 20.2 g law covered 30.0 cm in 0.59 seconds. What is the speed of the law?
- _____ A 20.2 g law covered 30.0 cm in 0.59 seconds. What is the linear momentum of the law?
- A single law is collided with a single duck marble. Given that $\text{mass}_{\text{law}} \times \text{velocity}_{\text{law before}} = \text{mass}_{\text{law}} \times \text{velocity}_{\text{law after}} + \text{mass}_{\text{duck}} \times \text{velocity}_{\text{duck after}}$ and the following information, show that linear momentum from before the collision is the same as the sum of the linear momentums after the collision.

Mass law	19.7 g
Speed law initial	44.7 cm/s
Mass duck	5.46 g
Speed law final	30.9 cm/s
Speed duck final	49.8cm/s