

Physical Science II
Worksheet & “Thought Lab”
Momentum

NAME _____ SEC _____ DATE _____

A. Typical momentum values for common objects

Find the momentum for each object.

1. Mr. Menin running at 8 m/s.
2. A 7 kg bowling ball rolling at 5 m/s.
3. A 900 kg car going 26 m/s (*this is a compact car going about 55 mph*).
4. A 140 kg linebacker running at 9.5 m/s.
5. A 12,000 kg truck sitting still at a red light.
6. A 12,000 kg truck going 35 m/s (*about 80 mph*).
7. A .004 kg snail going .0017 m/s.

B. Using the equation for momentum.

8. Mr. Menin’s momentum is 500 kg·m/s. What is his velocity?
9. A 1300 kg car has a momentum of 25,000 kg·m/s. What is its velocity?
10. A 2300 kg truck is found to have a momentum of 35,000 kg·m/s. How far does it go in 30 seconds?

11. A 50 kg woman walks 3.5 m in 4 seconds. What is her momentum?

12. A 1350 kg car goes 200 m in 8.5 seconds. What is its momentum?

Thought “Lab” (Optional)

A. Figure out your own momentum when you walk, this way:

1. To find your mass, take your weight in pounds and divide it by 2.2. This will give you your mass in kilograms.

Your Mass: _____

2. What is the typical walking speed for a person, in m/s? _____

3. So what is the value of your momentum when you are walking? _____

B. Figure out your own momentum when you run, this way.

4. Use your mass from above, Your Mass: _____

5. Pick a speed:

Slow: 7 m/s Medium: 8.5 m/s Fast: 10 m/s Sprinter: 11.5 m/s

6. Figure out your running momentum: _____

Some

Answers: 1) 640 kg·m/s 8) 6.25 m/s 10) About 457 m
11) About 44 kg·m/s