**Physical Science Semester 1 Study Guide Part One**

1. What is the name of the system of measurements used in science? What is the name of the system often used in the US?

2. What is volume? What is mass? If we compare the two (mass/volume), what is the ratio called?

3. What is the SI unit for length? For mass? For temperature? For force?

4. Convert 400cm to meters.

5. Convert 40kg to grams.

6. Convert 50,000mL to liters.

7. What type of graph would be best for showing the high temperatures each day in the month of June?

8. One car is going 30mph to the west while a second goes 30mph to the east. Do they have the same speed? The same velocity?

9. A man travels 40m in 20s. What is his speed over that distance?

10. A car changes velocity from 25m/s to 20m/s in 5s. What is the car’s acceleration over that period?

11. What is inertia? Which of Newton’s laws describes it? Which has more inertia, the moon or the earth?

12. Describe friction and tell what things affect it.

13. Describe gravity and tell what two factors affect it.

14. Does mass change based on location? Does weight?

15. A 100N force acts on a 20kg mass. What acceleration is observed?

16. What force is needed to accelerate a 90kg mass 10m/s?

17. What is the value for acceleration due to gravity (g)?

18. What is the weight of an 80kg person?

19. Describe a case in which air resistance can be helpful.

20. Two balls are rolling on a desk. Ball 1 rolls at 0.5m/s and Ball 2 rolls at 3m/s. If they both fall off the edge at the same instant, which will hit the ground first?

21. When a gun is fired, it recoils, or jumps backwards. Explain this using one of Newton’s Laws.

22. Momentum helps in knocking down pins at the end of a bowling alley. What two things could be done to increase the momentum of a ball?

23. How does conservation of momentum help to explain a game of pool?

24. What force helps to keep a car on the road during a turn?

25. What keeps the moon in orbit around the earth?