Name:_____ Science-8, Period ___ Teacher _____Date:_____

Semester Exam Review, Fall 2011-12

1. List and describe the 3 subatomic particles, including charge, location and mass.
2. Explain each part of the element cube including atomic mass, atomic number and symbol.
3. Compare the hydrogen and helium families in regards to reactivity. Why is one more reactive?
4. List the number of valence electrons for each of the following elements: Calcium, Lithium, Boron, Phosphorus, Sodium and Nitrogen.
5. What is a period in regards to the periodic table? What can it tell us about elements?
6. Draw a Bohr model of an atom of Chlorine.
7. How many protons would one molecule of Hydrogen contain?
8. How many electrons would one molecule of water contain?
9. How many neutrons would two molecules of water contain?
10. Define the following: mixture, compound, molecule, and element.
11. What is the difference between a physical change and a chemical change?
12. What is a chemical formula? Why do we use them?
13. What is a chemical equation? What must be true about all chemical equations?
14. How many atoms are in the chemical formula $4CuSO_4$?
15. What does the '4' in front of $CuSO_4$ mean in question 14?
16. Explain why all chemical equations must be balanced? What does that mean?
17. How would you find elements that all share similar chemical properties?
18. What are the best indicators that a chemical reaction has taken place?
19. What are the two sides to a chemical equation? Write a sample equation to illustrate this.
20. List 5 specific chemical reactions.
21. Describe Newton's 3 laws.
22. Define speed, velocity and acceleration.
23. Can an object be moving and not accelerating? Explain.
24. What is displacement? Why is displacement vital to any discussion of velocity and acceleration?
25. Describe inertia. How do we generally measure inertia?
26. Explain how force and mass are related in relation to acceleration.
27. Define balanced and unbalanced forces.
28. If the forces on an object are balanced, what is that object doing?
29. If the forces on an object are unbalanced, what is that object doing?
30. Define gravity. What is the acceleration due to gravity on Earth? What does this mean?
31. What is friction? List 4 examples of friction.
32. If you push 3 objects of differing masses with a constant force, which object will accelerate the fastest?
33. Draw a position time graph illustrating an object traveling at a constant speed, then stopping suddenly.
34. Did the graph you drew in question 33 show acceleration? Explain.
35. If an object with a mass of 33 grams is accelerated at a rate of 3 m/s^2, what was the Force applied to the object?
36. Describe the action/reaction pair as a rocket launches.

37. Which of Newton's laws best describes the need for seatbelts in a car?
38. If you are traveling on a boat moving at 15 m/s and the boat suddenly hits a sandbar, stopping the boat, at what speed do you continue forward?
39. About how much force would be required to hold a 10 kg barbell over your head?
40. What is a galaxy?
41. List and describe the 3 main types of galaxies.
42. Define the following: nebula, protostar, main sequence, supernova
43. Describe the life cycle of a low mass star (like our Sun), a high mass star, and a very high mass star.
44. What is the Big Bang theory?
45. Define the Doppler shift.
46. How does the Doppler shift support the Big Bang theory?
47. Explain the difference between a supernova and the Big Bang theory.
48. List the following star types from least to greatest magnitude: white dwarf, supergiant, giant
49. Define a light year. What do we use light years to measure?
50. Draw and label the parts of a wave.
51. Define absolute and apparent magnitude.
52. What are 2 different ways we can describe a stars magnitude?
53. Describe our Sun's apparent and absolute magnitude.
54. About where are we located in the Milky Way galaxy?
55. What causes the seasons on Earth?
56. Describe the rotation and revolution direction of the Earth.
57. Define rotation and revolution.
58. Describe the solstices and equinoxes, including the month in which they happen and the latitude that the Sun is most directly shining on in each.
59. Draw and label the moon phases from both perspectives (from the Earth and from above the Earth looking down at the North pole).
60. Describe the revolution and rotation of the moon.
61. How do the moon phases relate to the tides?
62. Describe Spring and Neap tides.
63. How often do high tides occur on Earth? What causes high tides on Earth?
64. Draw a diagram showing the position of the Sun, moon and Earth at both Spring and Neap tides. Label each tide with the correct moon phase.
65. If the New Moon happens on January 4th, on about what date would you expect the 3rd quarter moon to appear?
66. How much of the moon is always in shadow? What about the Earth? Why?
67. Describe how the movement of the Earth, Sun and moon affect what we see and experience on Earth.

-**Things to study:**
- -Previous quizzes
- -Previous Tests
- -Main vocabulary from each unit (especially motion and forces)

-**Semester Exam format:** (85 minutes)
- -78 Multiple choice
- -1 free response essay (will be done on the day of the exam)