PHYSICAL SCIENCE FINAL EXAM STUDY GUIDE – FIRST SEMESTER

1. What instrument is the best to use if you want to measure a liquid?

2. What are the steps of the scientific method and what approximate order do they occur?

3. Which type of graph is best when showing changes over a period of time?

4. If you keep accurate and complete records during a scientific investigation, the scientific community should be able to publish and review the results, replicate the investigation, and draw conclusions in order to develop a theory. (True/False)

5.

Based on the chart, how high can you expect the plant to have grown by day 5?

Day	Height
1	2 in
2	3 in
3	5 in
4	8 in
5	?

6. What is the difference between a group and a period?

7. How many atoms are in the chemical formula $C_{11}H_{22}O_{11}$?

8. What are the lab safety rules?

9. How can scientists avoid bias in their investigations?

10. How fast do molecules in water move in a solid? A liquid? A gas?

11. What should you always do when working with chemicals in a laboratory?

12. What are some examples of chemical properties of matter?

13. What is a control in an experiment?

14. List 3 examples of chemical changes.

15. What is the chemical ratio of Carbon to Oxygen in the chemical formula CO_2 ?

16. How many different elements are present in the chemical formula H_2O? How many total atoms are present in this chemical formula? What is the ratio of hydrogen to oxygen atoms in a molecule of water?

17. Explain how meters are converted to centimeters. Write the prefix chart used to help with conversions.

18. How can a scientist find the volume of an irregular shaped object?

19. Describe and give examples of a mixture.

20. What steps are taken to find the percent of a given set of numbers?

21. Describe the purpose of a hypothesis.

22. What tool is very helpful in storing and collecting scientific data?

23. What is the purpose of having a conclusion as part of the scientific process?

24. List 3 common chemical formulas for compounds and tell what elements they represent.

25. What is learned if many reported investigations suggest that a current scientific theory is wrong?

26. List 3 examples of mixtures:

27. Draw and label the phase-change diagram on p. 92 found in the Coach Book-It is also in your ISN notes

28. Describe the processes that take place during phase changes.

29. Round the following amounts to the nearest whole number: 34.52g,- 12.35g, 6.09g g

30. Compare mixtures to chemical change.

31. How are the numbers of electrons found?

32. Differentiate between atoms, compounds, elements, and mixtures. .
33. List examples of elements, mixture, and compounds. Elements- mixtures- compounds-l
34. Elements are examples of pure substances. What else is considered a pure substance?
35. Draw the model for the chemical formulas:.
36. Describe the changes that might occur with volume and shape of the 3 phases of matter.
37. What kind of relationship does the melting point and the freezing point have?
38. When a change in phases occurs what happens to its density and temperature? (example: liquid to a gas)
39. Give 3 examples of a physical change.
40. What happens during a physical change?
41. What is the formula for calculating density?
42. What is the number one way the elements are arranged in the periodic table?
43. How many elements are currently on the periodic table?
44. What do elements in the same family or group have in common?
45. State the Law of Conservation of Matter and explain its meaning.
46. When 2 chemical formulas are added together during a chemical reaction what must occur with the product's atoms?
47. Explain how density determines how substances arranged in a density column and what does this have to do with the density of water?
48. What is smallest unit of an element?
49. How can substances be separated into simpler substances by physical methods?
50. Using units how do we measure volume? mass? density?
51. Rusting is evidence of physical or chemical change?
52. How do we determine which element is least reactive?
53. What tool is used to measure mass? volume?
54. What are the chemical properties of metal? nonmetals?
55. Give an example of the Law of Conservation of Matter.
56. Water particles move more rapidly using which form? (Solid, liquid, gas)
57. What is the difference between mm, cm, m, and km?
58. Define substance, element, compound, atom, mixture. same as 32
59. How do we determine measurement of a liquid in a graduated cylinder?
60. How do we measure density?
61. Determine the amount of atoms in reactants and products.
62. Determine where each of these are on the periodic table: