**Classifying Matter – Study Guide**

1. A 54-gram sample of an unknown material has a volume equal to 20 cm3. What is the density? 2.7 g/cm3

2. List some examples of physical properties. color, odor, density, state, mass, volume,

3. What is buoyancy? the resistance to sinking

4. What are pure substances? substances that are the same all the way through, always made the same way Give some examples? elements( gold, oxygen, silicon, carbon) and compounds (water, salt, sugar)

5. What are substances that CANNOT be broken down chemically into other substances? elements

6. What is the measurement of the force of gravity on an object? weight

7. What is the measurement of how much matter an object contains? mass

8. What is the measurement of how much mass is contained in a given volume? density

9. What are all elements are composed of? atoms

10. How do we measure the volume of an irregular object? water displacement method

11. What tool do we use to measure volumes of liquid? graduated cylinder

12. What is anything that has mass and takes up space called? volume

13. How would you calculate the density of an object? mass divided by volume

14. How do liquid water, ice, and water vapor differ from each other? they are the same compound (H20) The difference is how the particles are spaced due to the temperature. More heat = more space

15. What type of property is the boiling point of a liquid? physical

16. What are soil, a salad, and sugar water all examples of? mixtures

17. What is a chemical formula? a symbolic representation of all the elements in a compound and the ration they are present in

18. Dissolving is an example of what kind of change? physical

19. What is a substance formed from two or more elements are chemically combined in a set ratio? compound

20. Explain the difference between a mixture and a compound. a mixture does not chemically combine, can be in any ratio, and can be easily separated. Compounds are chemically combined in a set ration and can not easily be broken down.

21. Explain the difference between atoms and molecules. atoms are the smallest part of an element. Molecules are two or more atoms combined

22. Explain the differences in finding the density of a rectangular solid and finding the density of an irregular solid.

for a regular object you would just use length x width x height and label in cm3

for an irregular object you must use the water displacement method and label in ml3

23. What do elements in the same group have in common? they have the same properties – like highly reactive

24. What do elements in the same row have in common? their properties change in a set pattern as you move left to right across the periodic table

25. What do we call useable power such as heat? energy

26. In what ways can you change the rate that a substance dissolves? heat it, stir it, break it into smaller pieces

27. Describe protons, neutrons and electrons. What are their charges and where are they located?

protons are in the nucleus and have a positive charge

neutrons are in the nucleus and have no charge

electrons surround the nucleus and have a negative charge

28. What is the smallest part of a compound that maintains properties of that compound? molecule

29. How do scientists determine the atomic mass of an element? protons + neutrons the atomic number? protons

30. What are properties of insulators? restrict flow of heat and electricity

31. What are properties of conductors? allow both heat and electricity to flow through easily

32. The formula for sugar is C12H22O11. What are the elements in this compound? How many of each element are there? 12 Carbon, 22 Hydrogen, 11 Oxygen

33. List properties of metals. shiny, ductile, conductors, melt at high temperatures

34. Describe each of the changes of state and what happens to the particles.

solid to liquid – melting – the particles begin to heat up and move fastur and further apart

liquid to gas – vaporization – particles continue to heat up and move fastur and further apart

gas to liquid – condensation – particles slow and move closer together

liquid to solid – freezing – particles slow to a point where they are just vibrating in place.

35. Describe the relationship between pressure and volume. as pressure increases, volume decreases

36. Define homogeneous mixture and give examples. homogeneous mixtures are evenly mixed throughout. Some examples are kool-aid, alloys like brass, hot chocolate (can not see the different parts)

37. Define heterogeneous mixture and give examples. Heterogeneous mixtures are unevenly mixed and different parts can be easily seen in it. pizza, salad dressing, tossed salad, our mixture lab

38. Why is water called the universal solvent? Because so many things will dissolve into it

39. What is distillation? the process of using evaporation and condensation to separate a solution

40. What is saturation? when a solution is so full of solvent that it can’t hold any more

41. What state of matter is common in the universe but very rare on earth? plasma

42. List several ways to separate mixtures. sifting, by size, evaporation, magnetism filtration, buoyancy

43. What is sublimation? changing from a solid to a gas without going through the liquid state

Also make sure you know solvent vs solute