

Name: Key
Chapter 1 study guide

Period: _____
Date: _____

CHAPTER 1 STUDY GUIDE: TEST THURSDAY OCTOBER 12, 2017

WARNING: This guide is not the only thing you should use to study. It does not provide you with everything you need. You should also rely on your textbook, homework, and classroom notes. Use everything you can for the best results.

Topic 1: Laboratory safety - (Binder Page 11)

- Make sure you look over the safety rules and procedures

Topic 2: Laboratory equipment - (Binder Page 13)

- Make sure you look over the pictures and the names of the important laboratory equipment

Topic 3: Scientific Method - (Binder Page 15-18)

1. Put the following steps of the scientific method in the proper order.

- 4 COLLECT/ANALYZE DATA
- 2 FORM A HYPOTHESIS
- 3 EXPERIMENT
- 5 FORM A CONCLUSION
- 1 OBSERVATION/QUESTION

2. Match the following terms with the correct

- | | |
|-------------------------------|--|
| <u>B</u> Hypothesis | A. Organized process to test a hypothesis |
| <u>E</u> Control | B. An educated guess about the solution to a problem |
| <u>F</u> Independent Variable | C. The factor that is measured in an experiment. |
| <u>A</u> Experiment | D. A judgment based on the results of an experiment |
| <u>D</u> Conclusion | E. Used as a comparison to show that the result of an experiment is really due to the condition being tested |
| <u>C</u> Dependent Variable | F. The factor that is manipulated during an experiment. |

Topic 4: Describing matter - (Binder Page 21-28)

3. Chemistry is the study of: a. Atoms b. Matter c. Compounds d. Explosions

4. Matter is anything that has what two properties?

A. Mass B. Volume

5. True/False: Matter does not have to be visible or solid in every case.

6. Matching:

- | | |
|--|-------------|
| <u>C</u> Smallest particle that still chemically reacts | A. Compound |
| <u>B</u> Simple substance made of one type of atom | B. Element |
| <u>D</u> Group of elements that can be the same or different | C. Atom |
| <u>A</u> Group of elements that must be different | D. Molecule |

7. Complete the subatomic particle table below:

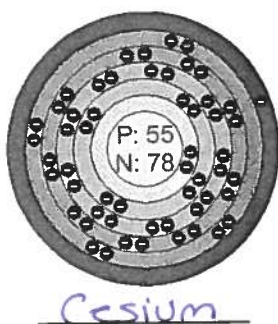
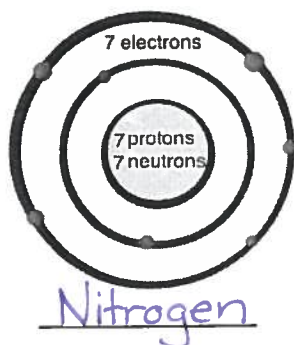
Particle	Charge	Location in the atoms
Proton	+	Nucleus
Neutron	0	Nucleus
Electron	-	Electron Cloud

8. Overall, atoms are _____ because the number of protons is _____ the number of electrons.
 a. Neutral; equal to b. Positive; greater than c. Negative; less than

9. True/False: Elements can be broken into other elements.

10. True/False: Atoms can gain and lose protons.

11. Use the data table to identify the two elements below: *** Look at the # of Protons to determine the element!*



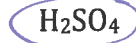
Element	# Protons	# Neutrons	# Electrons
Lithium	3	4	3
Nitrogen	7	7	7
Neon	10	10	10
Cesium	55	77	55
Barium	56	81	56

12. When elements chemically join, they form a: a. Link b. Element c. Atom d. Bond

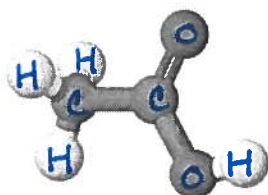
13. What is the difference between a molecule and a compound?

A molecule is when the same or different atoms are held together by a chemical bond. A compound is when different atoms (not the same) are held by a chemical bond.

14. Circle the compounds below.



15. Determine the formula and atomic ratio for the substance below.



Acetic acid = H₄C₂O₂

H = Hydrogen = 4 atoms

C = Carbon = 2 atoms

O = Oxygen = 2 atoms

Atomic ratio = 4 : 2 : 2
 (2 : 1 : 1)

16. True/False: The properties of a compound differ from the elements that make it.

17. What is the difference between a Mixture and Pure Substance?

Mixtures are made of 2 or more substances that are together but not chemically combined.

18. What is the difference between a homogenous mixture and a heterogeneous mixture?

Homogeneous = evenly mixed, can't see individual parts | Heterogeneous = can see different parts.

19. Matching:

A Salt

B Tap water

C Cookie dough

B Lemonade

B Air

A Aluminum

C Water and oil together

A. Pure substance

B. Homogeneous mixture

C. Heterogeneous mixture

In a pure substance the matter contains only one type of particle with the same properties and same ratio of atoms.

Name: _____

Chapter 1 study guide

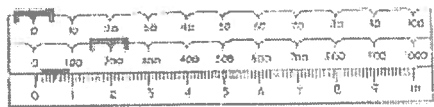
Topic 5: Measuring matter – Binder Page 29-34, textbook pg. 16 – 20

20. Circle the one that depends on gravity and underline the one that does not change.

Mass

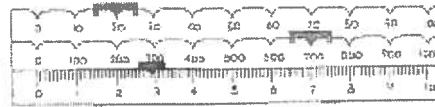
Weight

21. Determine the masses for the triple beam balances shown below.

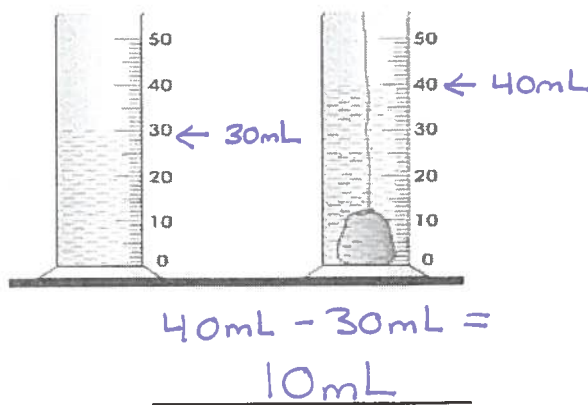
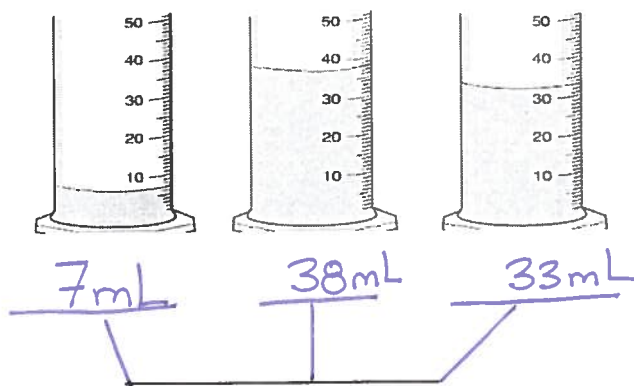


Answer: 200.5g

Answer: 723g



22. Determine volume for the pictures shown below, including the volume of the irregular object.



23. Write a definition for density.

The amount of mass in a specific volume.

24. Indicate the metric unit you should use for each of the following:

Mass = g

Volume = mL or cm³

Density = g/mL or g/cm³

25. Object A and Object B have the same mass. However, object A has a greater volume. Which object has the greater density?

Object B

26. Draw the density triangle.



- Mass = Density \times Volume
- Volume = Mass \div Density
- Density = Mass \div Volume

27. What is the density of an object with a mass of 60g and a volume of 2cm³?

$$D = \frac{M}{V} \quad 60g \div 2cm^3 = 30g/cm^3$$

28. What is the volume of an object that has a density of .6g/mL and a mass of 120g?

$$V = \frac{M}{D} \quad 120g \div 0.6g/mL = 200mL$$

29. What is the mass of an object with a volume of 34cm³ and a density of 6g/cm³?

$$M = D \cdot V \quad 6g/cm^3 \cdot 34cm^3 = 204g$$

30. An object has a density of 1.5g/mL. If you put it in water will it float? Why or why not?

No, because its density is greater than water's density.

Topic 6: Changes in matter – Binder Page 35-36, textbook pg. 22 – 27

31. A physical change:

- a. Results in a new substance
- b. Changes the identity of a substance
- c. Usually comes with fizzing and gas production
- d. Only changes the appearance of a substance

32. Circle the changes that are chemical changes.

Burning

Bending

Tearing

Precipitate

Rusting

33. True/False: Matter can neither be created nor destroyed.

34. True/False: The mass of the reactants equals the mass of the products in a chemical change.

35. Why does a campfire not have the same mass before and after burning?

Because it is an open system so products (like CO_2) can escape.

31. Matching:

- A Takes in energy
- B Feels warm to the touch
- B Campfire burning
- A Feels cold to the touch
- A Ice melting
- B Releases heat

- A. Endothermic
- B. Exothermic