

Matter Unit Study Guide [1]

Name _____ Date ____ Period ____

1. Oxygen and Hydrogen combine to form water. In the space to the right, draw an illustration of a water molecule. Additionally, identify water as any of the following that apply: an atom, an element, a molecule, and/or a compound. Explain your answer.

S8P1a

2. What is the smallest particle of the element iron (Fe) that can still be classified as iron? S8P1a

3. Paper, glass, and iron are all made up of _____. S8P1a.

4. A molecule is to a compound as an atom is to a(n) _____. S8P1a.

5. The diagram shows three containers of gas. Use the diagram to answer the questions below.

S8P1a-b

a. Which container(s) has atoms?

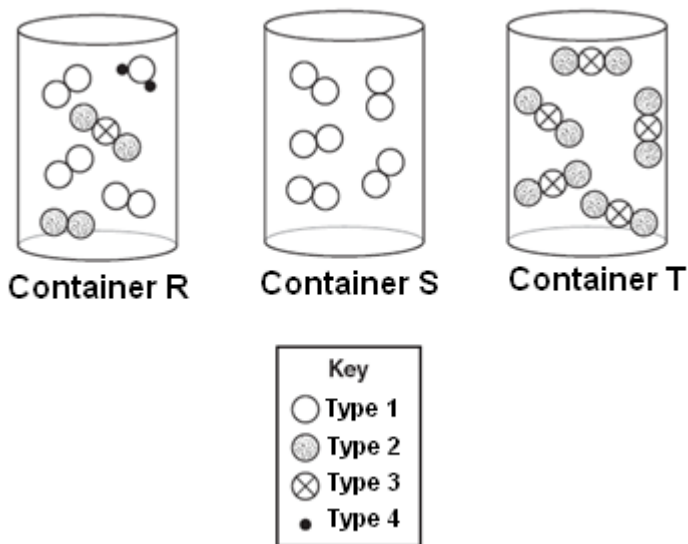
b. Which container(s) has an element?

c. Which container(s) has a pure substance?

d. Which container(s) has molecules?

e. Which container(s) has a mixture?

f. Which container(s) has compounds?



6. Which of the following do and do not represent a compound: O_2 , N_2O , CO_2 , H_2 , $NaCl$
Explain your answer. S8P1b

7. A solution of saltwater sits in the sun for 6 days. After 6 days, only salt remains in the cup. Explain why this is an example of a mixture. S8P1b

8. Mud Water is which of the following: element, compound, mixture. Explain your answer. S8P1b

9. Which of the following does not belong: Air, Salt, Water, or Oxygen Explain. S8P1b

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													The Periodic Table					
Period 1	Group 1a 1 H Hydrogen 1.00794	Group 2a											Group 3a	Group 4a	Group 5a	Group 6a	Group 7a	Group 0 2 He Helium 4.0026
Period 2	3 Li Lithium 6.941	4 Be Beryllium 9.0122											5 B Boron 10.811	6 C Carbon 12.011	7 N Nitrogen 14.0067	8 O Oxygen 15.9994	9 F Fluorine 18.9984	10 Ne Neon 20.183
Period 3	11 Na Sodium 22.9898	12 Mg Magnesium 24.305	Group 3b	Group 4b	Group 5b	Group 6b	Group 7b	Group 8	Group 8	Group 8	Group 1b	Group 2b	13 Al Aluminum 26.9815	14 Si Silicon 28.086	15 P Phosphorus 30.9738	16 S Sulfur 32.065	17 Cl Chlorine 35.453	18 Ar Argon 39.948
Period 4	19 K Potassium 39.098	20 Ca Calcium 40.08	21 Sc Scandium 44.956	22 Ti Titanium 47.87	23 V Vanadium 50.942	24 Cr Chromium 51.996	25 Mn Manganese 54.9380	26 Fe Iron 55.845	27 Co Cobalt 58.9332	28 Ni Nickel 58.69	29 Cu Copper 63.546	30 Zn Zinc 65.39	31 Ga Gallium 69.72	32 Ge Germanium 72.61	33 As Arsenic 74.9216	34 Se Selenium 78.96	35 Br Bromine 79.904	36 Kr Krypton 83.80
Period 5	37 Rb Rubidium 85.47	38 Sr Strontium 87.62	39 Y Yttrium 88.906	40 Zr Zirconium 91.22	41 Nb Niobium 92.905	42 Mo Molybdenum 95.94	43 Tc Technetium (98)	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.905	46 Pd Palladium 106.4	47 Ag Silver 107.868	48 Cd Cadmium 112.41	49 In Indium 114.82	50 Sn Tin 118.71	51 Sb Antimony 121.76	52 Te Tellurium 127.60	53 I Iodine 126.9045	54 Xe Xenon 131.29
Period 6	55 Cs Cesium 132.905	56 Ba Barium 137.33	57-71 * Lanthanides	72 Hf Hafnium 178.49	73 Ta Tantalum 180.948	74 W Tungsten 183.84	75 Re Rhenium 186.2	76 Os Osmium 190.2	77 Ir Iridium 192.2	78 Pt Platinum 195.08	79 Au Gold 196.967	80 Hg Mercury 200.59	81 Tl Thallium 204.38	82 Pb Lead 207.2	83 Bi Bismuth 208.98	84 Po Polonium (210)	85 At Astatine (210)	86 Rn Radon (222)
Period 7	87 Fr Francium (223)	88 Ra Radium (226)	89-103 ** Actinides	104 Rf Rutherfordium (261)	105 Db Dubnium (262)	106 Sg Seaborgium (266)	107 Bh Bohrium (264)	108 Hs Hassium (265)	109 Mt Meitnerium (268)	110 Ds Darmstadtium (281)	111 Rg Roentgenium (280)	112 Uub Element 112 (285)	113 Uut Element 113 (284)	114 Uuq Element 114 (289)	115 Uup Element 115 (287)	116 Uuh Element 116 (293)	118 Uuo Element 118 (294)	

10. What are the substances on the Periodic Table and why are they classified together in a table? S8P1b

11. On the periodic table, sodium is represented by Na. Na is a _____. S8P1f

12. Each element in the periodic table is assigned an atomic number. What does the atomic number tell us about the element? S8P1f

13. On the Periodic Table, what does the number above each of the elements represent? S8P1f

14. In the chemical formula for Magnesium chloride, $MgCl_2$, what does the subscript 2 represent? S8P1f

15. What are metalloids? Identify all the metalloids from the Periodic Table. S8P1f.

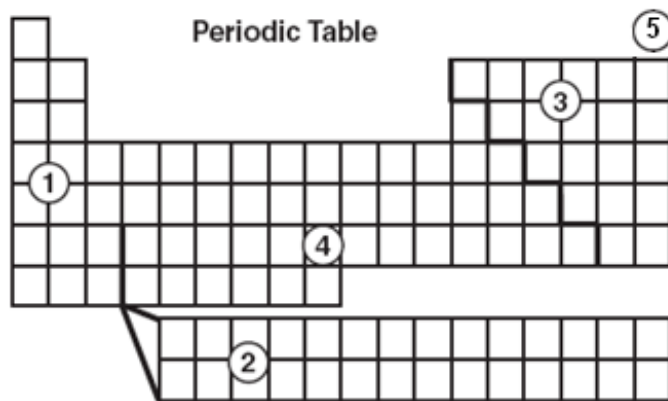
16. Read the statements below about the Periodic Table. Identify which statements are true/false. If the statement is false, explain why it is false. S8P1f

- Each horizontal row of the table is called group.
- Each family represents the number of energy levels present in an atom of the element.
- The properties of an element can be predicted from its location on the table.
- The elements are arranged from left to right, up to down by decreasing atomic number.

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Use the Periodic Table to the right to answer the following questions.



17. In which region of the table would nonmetals be found? S8P1f

18. In which region would the most reactive elements be found? S8P1f

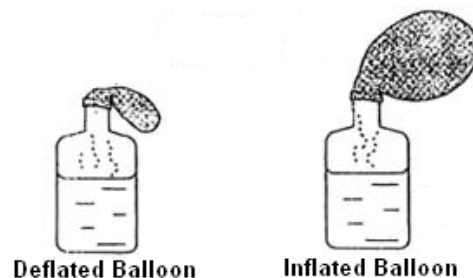
19. In which region would the least reactive elements be found? S8P1f

20. What is true about metals which is not true about nonmetals? S8P1f

21. Define Mass. S8P1g

22. Define the Law of Conservation of Matter. S8P1g

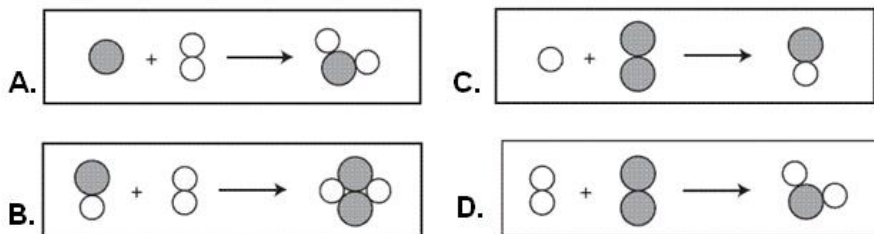
23. The diagram illustrates an experiment where baking soda was added to a container of vinegar. After five minutes, the balloon on the top of the bottle started expanding. Explain what happened and how this experiment demonstrates the Law of Conservation of Matter. S8P1g.



24. The diagram to the right illustrates _____ . Explain your answer. S8P1g

Mass of Reactants	Mass of Products
Methane + Oxygen	Carbon Dioxide + Water
50.0 g + 200.0 g	137.5 g + 112.5 g

25. Which model demonstrates the Law of Conservation of Matter? Explain your answer. S8P1g



26. An iron bar had a beginning mass of 150 grams. As the bar rusted, its mass increased. Explain why the mass of the iron bar increased. S8P1g.