

Name _____ Period _____

Chemistry

Mr. Thaler

7a

Refer to Chapter 6 of your textbook. On the "generic" periodic table on the reverse:

1. Draw a bold line (*the step*) separating the metals from the nonmetals.
2. Lightly color the metals some shade of blue. **First see number 5 below!**
3. Lightly color the metalloids some shade of purple.
4. Lightly color the nonmetals some shade of red.

(Be careful that your red and purple are distinguishable. Actually any 3 different colors will do; but remember metalloids exhibit properties of both metals and nonmetals.)

5. Lightly color hydrogen something completely different (like orange); it's in a class by itself!

For numbers 6 and 7, list elements as chemical symbols in the space below the periodic table, and include an appropriate heading for each.

6. List the elements that are gases at room temperature (20-25 °C). List those that are diatomic, *two atoms*, as such—for example, H₂, N₂, etc.
7. Likewise, list the elements that are liquids at room temperature.
8. In the space below, define *electronegativity*. In the margins of the periodic table, draw and label two arrows indicating increasing electronegativities of elements. (*For the record, the trend for electronegativity excludes the noble, or inert, gases. Why?*)
Electronegativity—
9. Likewise, define *atomic radius*. In the margins of the periodic table, draw and label two arrows indicating increasing atomic radii of elements.
Atomic radius—
10. Define *first ionization energy* below. Include increasing ionization energy on the arrows for one of the above trends, 8 or 9; it parallels only one of them.
First ionization energy—
11. With a pencil, lightly draw hash marks (////) across the *representative elements* on the periodic table.
12. Label the *s*-, *p*-, *d*-, and *f*-blocks on the periodic table.
13. In the space above the transition metals, or *d*-block, draw two little arrows, one indicating the direction of the *periods*, the other indicating the direction of the *groups* (or *families*), and label each. One arrow should be horizontal, the other vertical.
14. Finally, in the space below, briefly explain what defines periods and groups (or families). **To say that one is horizontal and one vertical is not acceptable.**
Periods—

Groups—

9/1

1a
1,008

11a

11a 11Va Va 11a 11a

0
2
He
4,00

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 3 Li 6.94 | 4 Be 9.01 | | | | | | | | | | | 5 B 10.81 | 6 C 12.01 | 7 N 14.00 | 8 O 15.99 | 9 F 18.99 | 10 Ne 20.18 | | | | | | | | | | | | | | | | | |
| 11 Na 22.99 | 12 Mg 24.31 | 13 Al 26.98 | 14 Si 28.09 | 15 P 30.97 | 16 S 32.06 | 17 Cl 35.45 | 18 Ar 39.95 | 19 K 39.10 | 20 Ca 40.08 | 21 Sc 44.96 | 22 Ti 47.90 | 23 V 50.94 | 24 Cr 51.99 | 25 Mn 54.94 | 26 Fe 55.85 | 27 Co 58.93 | 28 Ni 58.71 | 29 Cu 63.54 | 30 Zn 65.37 | 31 Ga 69.72 | 32 Ge 72.59 | 33 As 74.92 | 34 Se 78.96 | 35 Br 79.91 | 36 Kr 83.80 | | | | | | | | | |
| 37 Rb 85.47 | 38 Sr 87.62 | 39 Y 88.91 | 40 Zr 91.22 | 41 Nb 92.91 | 42 Mo 95.94 | 43 Tc (99) | 44 Ru 101.97 | 45 Rh 102.91 | 46 Pd 106.4 | 47 Ag 107.87 | 48 Cd 112.40 | 49 In 114.82 | 50 Sn 118.69 | 51 Sb 121.75 | 52 Te 127.60 | 53 I 126.90 | 54 Xe 131.30 | 55 Cs 132.91 | 56 Ba 137.34 | 57 La 138.91 | 58 Ce 140.12 | 59 Pr 140.91 | 60 Nd 144.24 | 61 Pm (147) | 62 Sm 150.35 | 63 Eu 151.96 | 64 Gd 157.25 | 65 Tb 158.92 | 66 Dy 162.50 | 67 Ho 164.93 | 68 Er 167.26 | 69 Tm 168.93 | 70 Yb 173.04 | 71 Lu 174.97 |
| 87 Fr (223) | 88 Ra (226) | 89 Ac (227) | 90 Th (232.04) | 91 Pa (231) | 92 U (238.03) | 93 Np (237) | 94 Pu (242) | 95 Am (243) | 96 Cm (247) | 97 Bk (247) | 98 Cf (251) | 99 Es (254) | 100 Fm (253) | 101 Md (256) | 102 No (254) | 103 Lw (257) | newly produced | | | | | | | | | | | | | | | | | |
| | | 104 Rf (261) | 105 Ha (260) | 106 | 263 | | | | | | | | | | | 104 Rf (261) | 105 Ha (260) | 106 | 263 | | | | | | | | | | | | | | | |