

## Report Sheet - Lab D2

Date \_\_\_\_\_

Name \_\_\_\_\_

Section \_\_\_\_\_

Team \_\_\_\_\_

Instructor \_\_\_\_\_

### Pre-Lab Study Questions

1. Describe the periodic table.

**The periodic table lists the chemical elements in order of atomic number. The elements that are similar in physical and chemical properties are arranged in vertical columns called groups. The horizontal rows are called periods.**

2. Where are the alkali metals and the halogens located on the periodic table?

**The alkali metals are in Group 1 and the halogens are in Group 7.**

3. On the following list of elements, circle the symbols of the transition elements and underline the symbols of the halogens:

Mg Cu Br Ag Ni Cl Fe F

4. Complete the list of names of elements and symbols:

Name of Element	Symbol	Name of Element	Symbol
Potassium	<b>K</b>	Sodium	Na
Sulfur	<b>S</b>	Phosphorus	P
Nitrogen	<b>N</b>	Iron	Fe
Magnesium	<b>Mg</b>	Chlorine	Cl
Copper	<b>Cu</b>	Silver	Ag

### A. Physical Properties of Elements

Element	Symbol	Atomic		Physical Properties	
		Number	Color	Luster	Metal/Nonmetal
Aluminum	<u>Al</u>	<u>13</u>	<u>Silver grey</u>	<u>shiny</u>	<u>metal</u>
Carbon	<u>C</u>	<u>6</u>	<u>Black</u>	dull	<u>nonmetal</u>
Copper	<u>Cu</u>	<u>29</u>	<u>Orange</u>	<u>shiny</u>	<u>metal</u>

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Iron	<u>Fe</u>	<u>26</u>	<b>grey-black</b>	<u>shiny</u>	<u>metal</u>
Magnesium	<u>Mg</u>	<u>12</u>	<b>Silver/white</b>	<u>shiny</u>	<u>metal</u>
Nickel	<u>Ni</u>	<u>28</u>	<b>Silvery</b>	<u>shiny</u>	<u>metal</u>
Nitrogen	<u>N</u>	<u>7</u>	<b>none/clear gas</b>	<u>none</u>	<u>nonmetal</u>
Oxygen	<u>O</u>	<u>8</u>	<b>none/clear gas</b>	<u>none</u>	<u>nonmetal</u>
Phosphorus	<u>P</u>	<u>15</u>	<b>white chunks</b>	<u>dull</u>	<u>nonmetal</u>
Silicon	<u>Si</u>	<u>14</u>	<b>grey-black</b>	<u>dull</u>	<u>nonmetal</u>
Silver	<u>Ag</u>	<u>47</u>	<b>silver</b>	<u>shiny</u>	<u>metal</u>
Sulfur	<u>S</u>	<u>16</u>	<b>yellow chunks</b>	<u>dull</u>	<u>nonmetal</u>
Tin	<u>Sn</u>	<u>50</u>	<b>Silver gray</b>	<u>shiny</u>	<u>metal</u>
Zinc	<u>Zn</u>	<u>30</u>	<b>gray</b>	<u>shiny</u>	<u>metal</u>

## B. Periodic Table

### B.1

1 H																		2 He
3 Li	4 Be											5 B	6 C	7 N	8 O	9 F	10 Ne	
11 Na	12 Mg											13 Al	14 Si	15 P	16 S	17 Cl	18 Ar	
19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr	
37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Rd	

## Questions and Problems

Q.1 From their positions on the periodic table, categorize the following elements as metals (M) or nonmetals (NM).

Na M      S NM      Cu M      F NM      Fe M  
 C NM      Ca M

Q.2 Give the name of each of the following elements:

- a. Noble gas in Period 2 Neon      b. Halogen in Period 2 Fluorine
- c. Alkali metal in Period 3 Sodium      d. Halogen in Period 3 Chlorine
- e. Alkali metal in Period 4 Potassium

B.2

Element	Metal/Nonmetal	Prediction: Shiny or Dull	Correct? Yes/No
Chromium	M	Shiny	Yes
Gold	M	Shiny	Yes
Lead	M	Shiny	Yes
Cadmium	M	Shiny	Yes
Silicon	NM	Dull	Yes

### C. Subatomic Particles

Element	Atomic Number	Mass Number	Protons	Neutrons	Electrons
Iron	26	56	26	30	26
Aluminum	13	27	13	14	13
Potassium	19	39	19	20	19
Bromine	35	80	35	45	35
Gold	79	197	79	118	79
Iodine	53	127	53	74	53

### D. Isotopes

Nuclear Symbol	Protons	Neutrons	Electrons
${}_{20}^{40}\text{Ca}$	20	20	20
${}_{20}^{42}\text{Ca}$	20	22	20
${}_{20}^{43}\text{Ca}$	20	23	20

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$^{44}_{20}\text{Ca}$	<b>20</b>	24	20
$^{46}_{20}\text{Ca}$	<b>20</b>	<b>26</b>	<b>20</b>

### Questions and Problems

Q.3 A neutral atom has a mass number of 80 and has 45 neutrons. Write its complete symbol.



Q.4 An atom has two more protons and two more electrons than the atom in question 3. What is its complete symbol?

