

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Period: \_\_\_\_\_

Graded problems are worth 2 points each. This assignment is graded out of **18** points.

**Read pages 284 to 291 before starting this assignment (the answers are within those pages).**

- 1) Give the period and group of each of the following elements. The first is done for you as an example.

	<i>Nitrogen</i>	Sodium	Iodine	Mercury	Argon
<b>Period</b>	2				
<b>Group</b>	15				

- 2) Name of the following elements and classify them as metals, metalloids, or non-metals:

<b>Chemical Symbol</b>	<b>Name</b>	<b>Classification</b>
K		
Si		
Ba		
S		

- 3) Both the Mendeleev and Mosely periodic charts have gaps for as-then-undiscovered elements. Why do you think the chart used by Mosely could be more accurate at predicting where new elements would be placed?

- 4) **Graded.** If a pattern repeats itself, it is \_\_\_.

- isotopic
- metallic
- periodic
- transition

- 5) **Graded.** \_\_\_ is an element that would have similar properties to those of neon.

- Aluminum
- Argon
- Arsenic
- Silver

- 6) **Graded.** Boron is a \_\_\_\_.
- metal
  - metalloid
  - noble gas
  - non-metal
- 7) **Graded.** The element potassium is a \_\_\_\_.
- metal
  - metalloid
  - non-metal
  - transition metal (transition element)
- 8) **Graded.** The element bromine is a \_\_\_\_.
- metal
  - metalloid
  - non-metal
  - transition metal (transition element)
- 9) **Graded.** The halogens are those elements in Group \_\_\_\_.
- 1
  - 11
  - 15
  - 17
- 10) **Graded.** In its group, nitrogen is the only element that is a \_\_\_\_.
- gas
  - metal
  - metalloid
  - liquid
- 11) **Graded.** \_\_\_\_ is a shiny element that conducts electricity and heat well.
- Chlorine
  - Sulfur
  - Hydrogen
  - Magnesium
- 12) **Graded.** The atomic number of Re is 75. The atomic mass of one of its isotopes is 186. How many neutrons are in an atom of this isotope?
- 75
  - 111
  - 186
  - 261

## Selected Answers

- 1) Give the period and group of each of the following elements. The first is done for you as an example.

	<i>Nitrogen</i>	Sodium	Iodine	Mercury	Argon
<b>Period</b>	<i>2</i>	<b>3</b>	<b>5</b>	<b>6</b>	<b>3</b>
<b>Group</b>	<i>15</i>	<b>1</b>	<b>17</b>	<b>12</b>	<b>18</b>

- 2) Name of the following elements and classify them as metals, metalloids, or non-metals:

<b>Chemical Symbol</b>	<b>Name</b>	<b>Classification</b>
K	<i>Potassium</i>	<i>Metal</i>
Si	<i>Silicon</i>	<i>Metalloid</i>
Ba	<i>Barium</i>	<i>Metal</i>
S	<i>Sulfur</i>	<i>Non-metal</i>

- 3) Both the Mendeleev and Mosely periodic charts have gaps for as-yet-undiscovered elements. Why do you think the chart used by Mosely could be more accurate at predicting where new elements would be placed?

*Mosely's table is based on atomic number, rather than atomic mass. Atomic number will always increase by one, since it counts the number of protons. This makes it easier to predict where something should go because it is easy to identify the missing number in the sequence. Mendeleev's organization by atomic mass did not always increase by a set amount, and sometimes it even needed to decrease. Because of this irregularity, it made for some erroneous predictions about where elements should be.*