

LOCATION OF ELEMENTS WORKSHEET

	Noble Gas Config.	Period	Block (s, p, d, f)	Group
1	[Ne] 3s <sup>2</sup> 3p <sup>2</sup>			
2	[Ar] 4s <sup>2</sup> 3d <sup>10</sup> 4p <sup>6</sup>			
3	[Xe] 6s <sup>2</sup>			
4	[Kr] 5s <sup>2</sup> 4d <sup>10</sup> 5p <sup>5</sup>			
5	[Ar] 4s <sup>2</sup> 3d <sup>10</sup> 4p <sup>1</sup>			
6	[He] 2s <sup>2</sup> 2p <sup>3</sup>			
7	[Kr] 5s <sup>2</sup> 4d <sup>10</sup> 5p <sup>4</sup>			
8	[He] 2s <sup>1</sup>			
9	[Xe] 6s <sup>2</sup> 4f <sup>14</sup> 5d <sup>10</sup> 6p <sup>2</sup>			
10	[Rn] 7s <sup>2</sup>			

PERIODIC TRENDS (multiple choice w/o using Periodic Table) WORKSHEET

- Which element is most metallic? Group 14, Period \_\_\_  
 (A) 2 (B) 3 (C) 4 (D) 5
- Which element is most nonmetallic? Group 16, Period \_\_\_  
 (A) 2 (B) 3 (C) 4 (D) 5
- Which has the largest atomic radius? Group \_\_\_, Period 2  
 (A) 1 (B) 13 (C) 15 (D) 17
- Which has the highest ionization energy? Group 2, Period \_\_\_  
 (A) 3 (B) 4 (C) 5 (D) 6
- Which has the most metallic properties? Group \_\_\_, Period 5  
 (A) 13 (B) 14 (C) 15 (D) 16
- Which has the greatest electron affinity?  
 (A) Grp 16, Pd 4 (B) Grp 16, Pd 5 (C) Grp 17, Pd 5 (D) Grp 17, Pd 4
- Which has the smallest atomic radius? Group 15, Period \_\_\_  
 (A) 2 (B) 3 (C) 4 (D) 5
- Which has the lowest electron affinity? Group \_\_\_, Period 3  
 (A) 13 (B) 15 (C) 17 (D) 18
- Which has the lowest ionization energy? Group 1, Period \_\_\_  
 (A) 2 (B) 3 (C) 4 (D) 5

- 10.) Which has the most metallic properties?  
 (A) Grp 15, Pd 5      (B) Grp 16, Pd 5      (C) Grp 15, Pd 6      (D) Grp 16, Pd 6
- 11.) Which would most easily lose its valence electrons?  
 (A) Grp 1, Pd 3      (B) Grp 14, Pd 2      (C) Grp 17, Pd 3      (D) Grp 18, Pd 2
- 12.) Which would most easily gain electrons?  
 (A) Grp 13, Pd 3      (B) Grp 14, Pd 2      (C) Grp 15, Pd 2      (D) Grp 17, Pd 3
- 13.) Which has an octet of electrons in its outermost energy level?  
 (A) Grp 13, Pd 3      (B) Grp 14, Pd 2      (C) Grp 18, Pd 2      (D) Grp 17, Pd 5
- 14.) Which has chemical properties most similar to [Ar] 4s<sup>1</sup>?      Group \_\_, Period 3  
 (A) 1      (B) 2      (C) 13      (D) 14
- 15.) Which is most reactive?      Group \_\_, Period 2  
 (A) 14      (B) 15      (C) 17      (D) 18
- 16.) Which is most reactive?  
 (A) Grp 13, Pd 2      (B) Grp 1, Pd 5      (C) Grp 2, Pd 5      (D) Grp 13, Pd 5
- 17.) Which has chemical properties most similar to [Ne] 3s<sup>2</sup> 3p<sup>5</sup>?  
 (A) Grp 16, Pd 3      (B) Grp 18, Pd 3      (C) Grp 17, Pd 4      (D) Grp 18, Pd 2
- 18.) Which would never be found in the free state?  
 (A) Grp 1, Pd 4      (B) Grp 13, Pd 3      (C) Grp 15, Pd 3      (D) Grp 14, Pd 4
- 19.) Which is the least reactive gas?      Group \_\_, Period 2  
 (A) 16      (B) 15      (C) 17      (D) 18
- 20.) Which is the most reactive gas?      Group \_\_, Period 2  
 (A) 16      (B) 15      (C) 17      (D) 18
- 21.) Which would never be in a compound?  
 (A) Grp 1, Pd 1      (B) Grp 18, Pd 1      (C) Grp 13, Pd 2      (D) Grp 1, Pd 2
- 22.) Which would be found in the "d" block of elements?  
 (A) Grp 1, Pd 3      (B) Grp 11, Pd 4      (C) Grp 17, Pd 5      (D) Grp 14, Pd 2

**UNIT 5 REVIEW WORKSHEET**

***Matching***

Alkali metals

Alkaline earth metals

Noble gases

Transition metals

Halogens

- The \_\_\_\_\_ have a single electron in the highest energy level.
- The \_\_\_\_\_ achieve the electron configurations of noble gases by losing two electrons.
- The \_\_\_\_\_ achieve the electron configuration of noble gases by gaining one electron.
- The \_\_\_\_\_ have full s and p orbitals in the highest occupied energy levels.
- The \_\_\_\_\_ are stable and unreactive.
- The \_\_\_\_\_ are highly reactive nonmetals and readily form compounds with metals.

7. The \_\_\_\_\_ are metals that are more reactive than the transition elements but less reactive than the alkali metals.

Atomic radius	Decrease	Noble gases
Electronegativity	Ionization energy	Increase
Metals	Noble gas configuration	Shielding effect
Nonmetals	Metalloid	

8. \_\_\_\_\_ is the energy required to remove an electron from an atom.

9. The attraction of an atom for an additional electron is called \_\_\_\_\_.

10. When they have a(n) \_\_\_\_\_, ions have a stable, filled outer electron level.

11. Along with the increased distance of the outer electrons from the nucleus, the \_\_\_\_\_ of the inner electrons causes ionization energy to decrease going down a column of the Periodic Table.

12. A low ionization energy is characteristic of a(n) \_\_\_\_\_.

13. Ionization energies tend to \_\_\_\_\_ across periods of the periodic table.

14. An element with an extremely high ionization energy is classified as a(n) \_\_\_\_\_.

15. The distance from the nucleus to the highest occupied energy level is known as \_\_\_\_\_.

16. The \_\_\_\_\_ do not have measured electronegativities since they do not commonly form compounds.

**Predict the oxidation number based on the electron configuration shown.**

17.  $1s^2 2s^2 2p^6 3s^2$

18.  $1s^2 2s^2 2p^6 3s^1$

19.  $1s^2 2s^2 2p^6$

20.  $1s^2 2s^2 2p^5$

21.  $1s^2 2s^2 2p^1$

**Choose the location of the element with the higher ionization energy.**

22. Period 2, Group 14 or Period 3, Group 13

23. Period 4, Group 2 or Period 5, Group 2

24. Period 1, Group 18 or Period 2, Group 1

25. Period 3, Group 17 or Period 3, Group 18

26. Period 3, Group 17 or Period 2, Group 17

27. Period 3, Group 17 or Period 3, Group 16

**Arrange the element locations in order of increasing electronegativity.**

28. (A) Period 4, Group 13 (B) Period 3, Group 13 (C) Period 5, Group 13

29. (A) Period 4, Group 2 (B) Period 4, Group 16 (C) Period 4, Group 15

30. (A) Period 2, Group 16 (B) Period 2, Group 17 (C) Period 3, Group 16

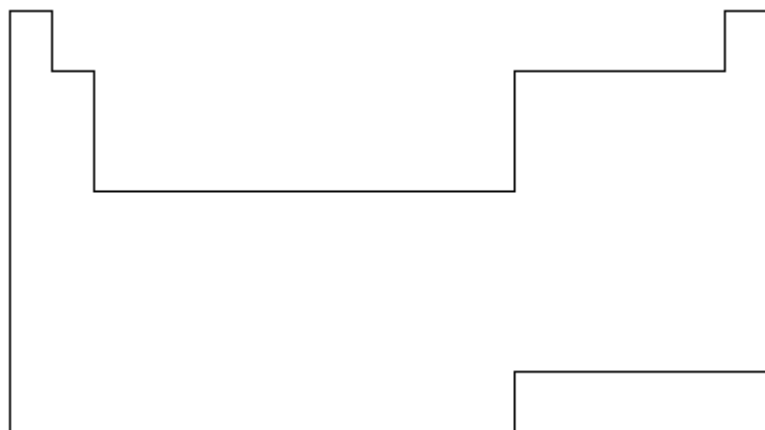
31. (A) Period 3, Group 15 (B) Period 2, Group 16 (C) Period 4, Group 14

**Choose the location of the element with the larger atomic radius.**

32. Period 2, Group 1            or        Period 4, Group 1  
 33. Period 4, Group 2           or        Period 4, Group 16  
 34. Period 4, Group 13        or        Period 2, Group 13  
 35. Period 2, Group 16        or        Period 2, Group 14  
 36. Period 3, Group 17        or        Period 4, Group 17  
 37. Period 2, Group 2           or        Period 6, Group 2  
 38. Period 3, Group 14        or        Period 3, Group 16

**Multiple Choice**

39. In any \_\_\_\_, the number of electrons between the nucleus and the outer energy level is the same.  
 (A) period    (B) group    (C) both    (D) neither
40. In a \_\_\_\_, electron affinity values decreases as atomic number increases.  
 (A) period    (B) group    (C) both    (D) neither
41. The halogens are considered a \_\_\_\_.  
 (A) period    (B) group    (C) both    (D) neither



**On the Periodic Table, show the location of the element with the...**

42. lowest ionization energy  
 43. most nonmetallic properties  
 44. smallest atomic radius  
 45. highest electronegativity  
 46. largest atomic radius  
 47. highest ionization energy  
 48. most metallic properties

**Answer the following questions.**

49. Explain the relationship between the relative size of an ion to its atom and the charge on the ion.
50. Explain why noble gases are inert and do not form ions.
51. Why do elements in the same family generally have similar properties?
52. If element X is a very reactive nonmetal, then the element with atomic number X + 1 should have what properties?

UNIT 5 REVIEW/SUMMARY WORKSHEET

1										18
	2					13	14	15	16	17
		3	---	12						
		*								
		**								

*																				
**																				

- 1.) Color the "s" block area red.
- 2.) Color the "p" block area blue.
- 3.) Color the "d" block area green.
- 4.) Color the "f" block area orange.
- 5.) Draw an X in the boxes that represent the unreactive elements
- 6.) Draw a diagonal line (from upper left to lower right) in the area that represents the very reactive nonmetals.
- 7.) Draw a diagonal line (from upper right to lower left) in the area that represents the very reactive metals.
- 8.) Draw a purple capital letter "R" with a circle around it at the location that represents the element with the largest atomic radius.
- 9.) Draw a blue capital letter "I" with a diamond around it at the location that represents the element with the highest ionization energy.
- 10.) Draw a dark green capital letter "E" with a triangle around it at the location that represents the element with the highest electronegativity/electron affinity.
- 11.) Outline in black the boxes where metalloids with more nonmetallic properties are located.
- 12.) Outline in red the boxes where metalloids with more metallic properties are located.
- 13.) Draw a star in the location that represents the most metallic element (or most reactive metal).
- 14.) Draw a heart in the location that represents the most nonmetallic element (or most reactive nonmetal).