

Worksheet
Periodic Trends

Name KEY
Period _____

1. Discuss the importance of Mendeleev's periodic law.

allows us to make predictions about how elements will behave

2. Identify each element as a metal, metalloid, or nonmetal.

- a) fluorine nonmetal
- b) germanium metalloid
- c) zinc metal
- d) phosphorous nonmetal
- e) lithium metal

3. Give two examples of elements for each category.

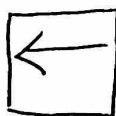
- a) noble gases He, Ne
- b) halogens F, Cl
- c) alkali metals H, Li
- d) alkaline earth metals Be, Mg

4. What trend in atomic radius do you see as you go down a group/family on the periodic table? What causes this trend?



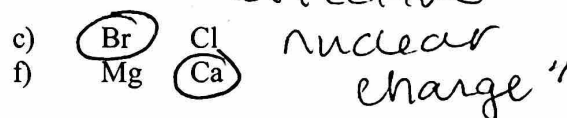
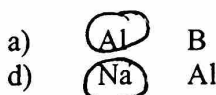
increases going down. More energy levels, outside e⁻ are "shielded" by the inner e⁻ so nucleus can't pull outer e⁻

5. What trend in atomic radius do you see as you go across a period/row on the periodic table? What causes this trend?



increases R → L, or decreases L → R. Close because more protons can pull in the outer e⁻ harder so it gets smaller

6. Circle the atom in each pair that has the largest atomic radius.



7. Define ionization energy.

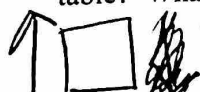
energy it takes to remove an e⁻ from an atom

8. Is it easier to form a positive ion with an element that has a high ionization energy or an element that has a low ionization energy? Explain.

low ionization energy - means its easier to

9. Use the concept of ionization energy to explain why sodium form a 1+ ion (Na⁺) but magnesium forms a 2+ ion (Mg²⁺).
because Na is stable full shell with +1 charge so making it a +2 would have a HUGE ionization energy, Mg is stable full shell with take e⁻ away


10. What trend in ionization energy do you see as you go down a group/family on the periodic table? What causes this trend?



increases going up, decreases/doesn't have going down b/c e⁻ further away from nucleus, less pull easier to remove e⁻ high I.E.

Honors Chemistry

11. What trend in ionization energy do you see as you go across a period/row on the periodic table? What causes this trend?

 Increases L → R, smaller radius so nucleus pulls harder on outer e⁻ so IE goes up


12. Circle the atom in each pair that has the greater ionization energy.

- a) Li Be b) Na K c) Cl Si
d) Ca Ba e) P Ar f) Li K

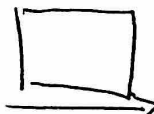
13. Define electronegativity

How strongly an atom can attract an e⁻

14. What trend in electronegativity do you see as you go down a group/family on the periodic table? What causes this trend?

 Increases going up, decreases going down b/c outer e⁻ are further away from nucleus so harder to attract

15. What trend in electronegativity do you see as you go across a period/row on the periodic table? What causes this trend? an e⁻

 Increases going L → R b/c smaller radius means nucleus can pull harder on outer shell to attract

16. Circle the atom in each pair that has the greater electronegativity. an e⁻

- a) Ca Ga b) Li O c) Cl S
d) Br As e) Ba Sr f) O S

18. (SKIP) Define electron affinity.

19. (SKIP) What trend in electron affinity do you see as you go down a group/family on the periodic table? What causes this trend?

20. (SKIP) What trend in electron affinity do you see as you go across a period/row on the periodic table? What causes this trend?