

This week's quiz is one day early: Thursday

Purpose:

How do we draw Lewis Dot structures for MOLECULES?

WARMUP :

please tape or staple in the handout strip

- 1) ATOMIC RADIUS increases as you go towards francium
- 2) IONIZATION ENERGY increases as you go towards helium
- 3) ELECTRONEGATIVITY increases as you go towards helium
- 4) atom charge = (# of protons) - (# of electrons)
- 5) atomic mass # = (# of protons) - (# of neutrons)

6) Lewis dot structures only show valence e-

7) When are atoms stable?

Most atoms are stable if they have 8 electrons in their valence orbit


Except for really small atoms (H, He, Li, Be, B). They are stable if they have 2 electrons in their valence orbit.

8) Where are the valence e- in molecules?

a. valence e- in molecules are usually in pairs

b. a covalent bond is made of paired e-

c. covalent bonds hold atoms together

d. H:H 

d. these are the only allowed covalent bonds:

C:C

↑

one pair

C::C

↑

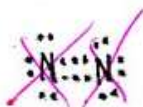
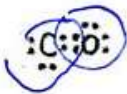
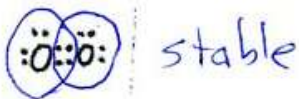
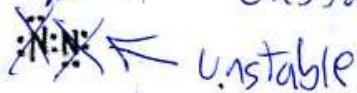
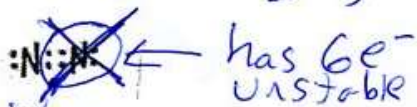
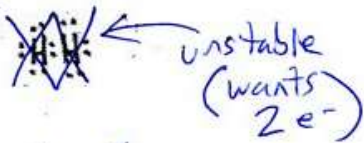
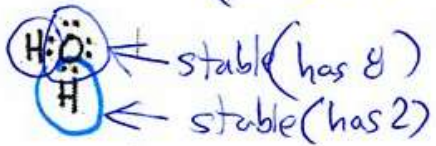
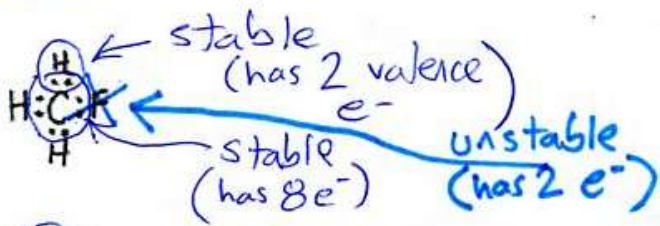
two pairs

C:::C

↑

three pairs

NOTES



1s22s2 To Lewis Dot

Chemistry: <http://genest.weebly.com>

Stop in for help every day at lunch and Tues, & Thurs after school!



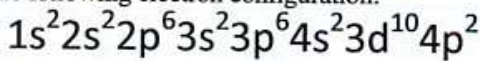
My Name NAME

Period _____

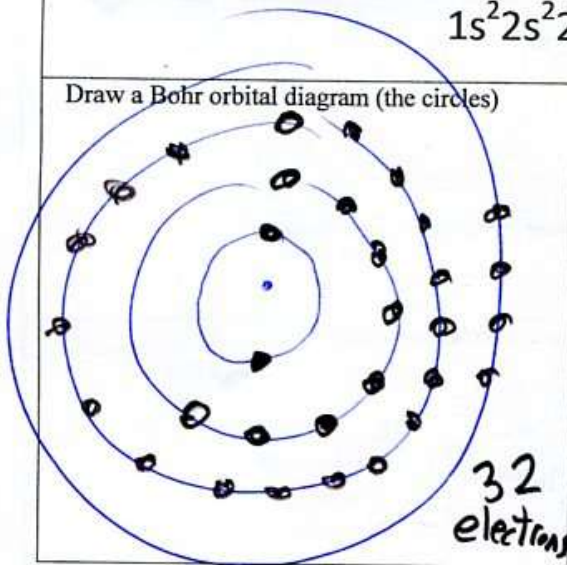
1. Rewrite the following Noble Gas Abbreviations in the longer version of electron configuration (1s² 2s² etcetera)
- a. [Ar]4s²3d² 1s²2s²2p⁶3s²3p⁶4s²3d² = 22 electrons
- b. [He]2s²2p⁵ 1s²2s²2p⁵ = 9 electrons
- c. Write the Lewis Dot symbol for each of the two atoms above:



2. for a NEUTRAL atom with the following electron configuration:



Draw a Bohr orbital diagram (the circles)



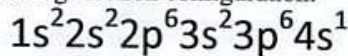
Write a Lewis dot diagram (Letter and dots)



This atom has 4 valence e- therefore it is (stable / unstable)

because it "wants" 8 valence e-

3. for a NEUTRAL atom with the following electron configuration:



Tell how many e- are in each energy level

1st: 2 2nd: 8 3rd: 8 4th: 1 5th: 0

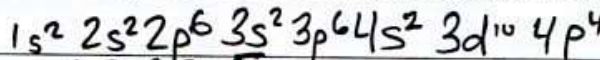
This atom has one valence e- therefore it is (stable / unstable)

Write a Lewis dot diagram (Letter and dots)

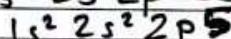


4. With the help of your Rewrite the following Noble Gas Abbreviations in the longer version of electron configuration (1s² 2s² etcetera)

a. [Ar]4s²3d¹⁰4p⁴



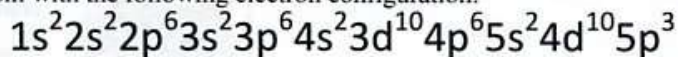
b. [He]2s²2p⁵



- c. Write the Lewis Dot symbol for each of the two atoms above:



5. for a NEUTRAL atom with the following electron configuration:



Tell how many e- are in each energy level

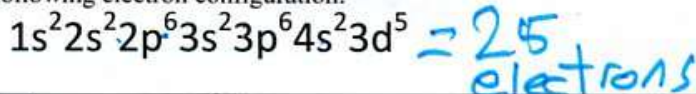
1st: 2 2nd: 8 3rd: 18 4th: 18 5th: 5

This atom has 5 valence e-
therefore it is (stable / unstable)

Write a Lewis dot diagram (Letter and dots)



6. for a NEUTRAL atom with the following electron configuration:



Tell how many e- are in each energy level

1st: 2 2nd: 8 3rd: 13 4th: 2 5th: 0

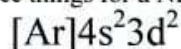
This atom has 2 valence e-
therefore it is (stable / unstable)

Write a Lewis dot diagram (Letter and dots)

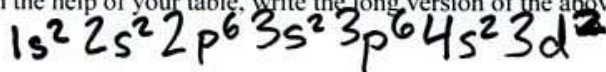


= 25 protons

7. Do three things for a NEUTRAL atom with the following electron configuration:



With the help of your table, write the long version of the above electron configuration.



Tell how many e- are in each energy level

1st: 2 2nd: 8 3rd: 10 4th: 2 5th: 0

This atom has 2 valence e-
therefore it is (stable / unstable)

Write a Lewis dot diagram (Letter and dots)



8. for a NEUTRAL atom with the following electron configuration:



nucleus

Tell how many e- are in each energy level

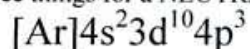
1st: 2 2nd: 8 3rd: 6 4th: 0 5th: 0

This atom has 6 valence e-
therefore it is (stable / unstable)

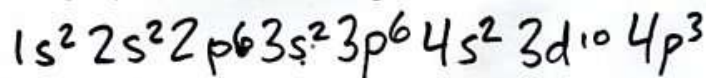
Write a Lewis dot diagram (Letter and dots)



9. Do three things for a NEUTRAL atom with the following electron configuration:



With the help of your table, write the long version of the above electron configuration.



Tell how many e- are in each energy level

1st: 2 2nd: 8 3rd: 18 4th: 5 5th: 0

This atom has 5 valence e-
therefore it is (stable / unstable)

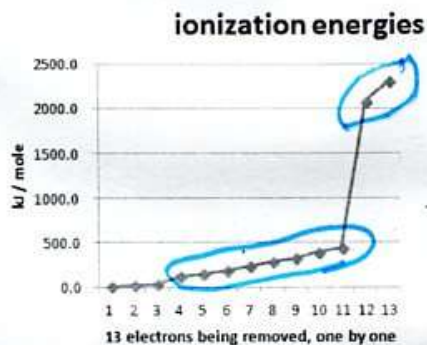
Write a Lewis dot diagram (Letter and dots)



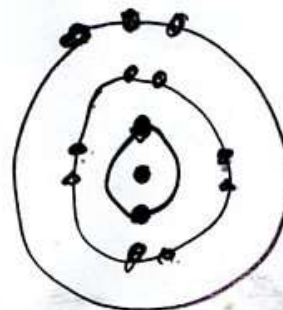
10. The graph of ionization energies for a 13-electron atom is shown here. Based on the difficulty of ionization, electrons 1, 2, & 3 are probably (near the nucleus / in the valence orbit)

11. Based on the difficulty of ionization, electrons 12 & 13 are probably (near the nucleus / in the valence orbit)

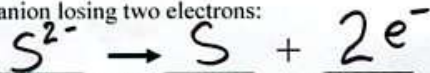
12. In the box, draw a Bohr style atom. Your atom should have 13 protons. The electrons should be in three circular shaped orbits.



Draw a Bohr-style atom in this box.



13. Write a balanced equation for S^{2-} anion losing two electrons:



14. Write a balanced equation for the only stable calcium ion gaining two electrons:

