

1. Complete the chart

|          | Charge   | Where found    |
|----------|----------|----------------|
| Proton   | positive | in nucleus     |
| Neutron  | neutral  | in nucleus     |
| electron | negative | outside of nuc |

2. Name ONE SIMILARITY and ONE DIFFERENCE between protons and neutrons.

Both account for mass of atom  
Both in nucleus

Protons have positive charge  
Neutrons are neutral.

3. Which subatomic particle accounts for most of the MASS of the atom?

protons, neutrons

4. Which subatomic particle accounts for most of the VOLUME of the atom?

electrons

5. What determines NUCLEAR charge of an atom? = charge in nucleus  
protons

6. What is a cation and how does an atom become one?

Cation is a positive ion. An atom loses <sup>one or more</sup> ~~an~~ electrons

7. Complete the chart for ATOMS

| Element | Atomic Number | Number of Protons | Number of Neutrons | Number of Electrons |
|---------|---------------|-------------------|--------------------|---------------------|
| Pb      | 82            | 82                | 125                | 82                  |
| Oxygen  | 8             | 8                 | 8                  | 8                   |
| Zinc    | 30            | 30                | 35                 | 30                  |

8. Complete the chart for IONS

| Element   | Atomic Number | Number of Protons | Number of Neutrons | Number of Electrons |
|-----------|---------------|-------------------|--------------------|---------------------|
| Oxygen    | 8             | 8                 | 16                 | 10                  |
| Nitrogen  | 7             | 7                 | 7                  | 10                  |
| Potassium | 19            | 19                | 20                 | 18                  |

9. Name four chemical family names.

Alkali Metals  
Alkali Earth metals  
Halogens, Noble Gases

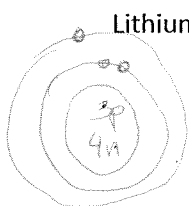
10. How is a covalent bond different from an ionic bond?

electrons are shared

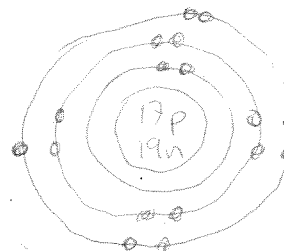
electrons are transferred (given away or taken)

11. Give ONE SIMILARITY and ONE DIFFERENCE between Bohr and Lewis diagrams.

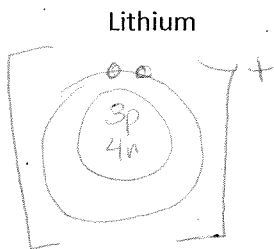
12. Draw Bohr diagram for the following ATOMS. Please show ALL subatomic particles.



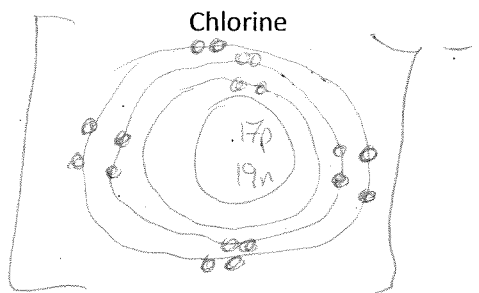
Chlorine



13. Draw Bohr diagrams for the following elements in their IONIC state (remember to show brackets and charges).



- lost an electron  
- valence shell stable



gained an electron,  
filling valence shell, gaining  
"- " charge

14. Draw LEWIS diagrams for the following ATOMS:

Lithium



Chlorine



only show valence electrons

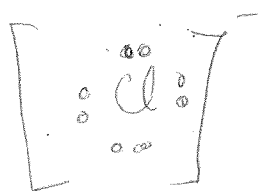
15. Draw LEWIS diagrams for the following IONS, remember to show charges and brackets:

Lithium

Chlorine



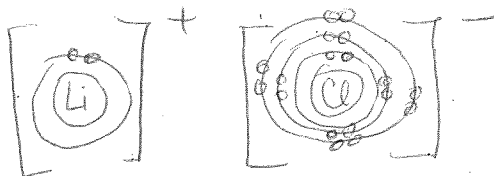
gave away electron, (no valence e<sup>-</sup>)  
gaining positive charge



gained an electron,  
gained a negative  
charge. Full outer  
shell of 8 valence  
electrons

16. Draw Bohr model of ionic compound made of Lithium and Chlorine.

~~draw~~



17. Draw LEWIS diagram of ionic compound made of Lithium and Chlorine.



18. Draw LEWIS diagram of a covalent compound of water (H<sub>2</sub>O). Label

H<sub>x</sub>

