Guided Notes- Bonding #1

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| Electrons Electron configurationChemical propertiesValence ElectronsHow many valence electrons are there?Octet RuleWhy do they have partial or full shells?Lewis Dot DiagramsIonization energyCationAnion | Electrons are the only \_\_\_\_\_\_\_\_ subatomic particles directly involved in chemical reactions.  Electron configuration = Distribution of electrons in an atom's electron \_\_\_\_\_\_\_\_\_ (orbitals). http://iws.collin.edu/biopage/faculty/mcculloch/1406/outlines/chapter%202/Periodic%20Table.jpgIf an atom does not have enough \_\_\_\_\_\_\_\_\_\_ to fill all shells, the outer shell will be the only one partially filled.Chemical properties of an atom depend upon the number of **\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_**.*Example- Group 1 all the elements are highly reactive to H20.*Valence electrons = Electrons in the atom’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy shell.You can tell how many valence electrons there are in each atom by looking at its \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_. Valence Electrons final.png

|  |  |
| --- | --- |
| Group # | # of valence electrons |
| 1 | 1 |
| 2 | 2 |
| 13\* | 3 |
| 14\* | 4 |
| 15\* | 5 |
| 16\* | 6 |
| 17\* | 7 |
| 18\* | 2 (for period 1 ONLY)8 (noble gases already have a full energy shell!) |

 *\*As you can see you “ignore” the 1 in Groups 13-18)*Practice- How many valence electrons does K have? (Hint- what group # is K in?) \_\_\_\_\_\_\_Practice- How many valence electrons does C have? \_\_\_\_\_\_\_An atom with a complete valence shell is \_\_\_\_\_\_\_\_\_\_\_ or inert. An atom with an \_\_\_\_\_\_\_\_\_\_\_ valence shell is chemically reactive (tends to form chemical bonds until it has 8 electrons to fill the valence shell). **Octet rule** = Rule that a valence shell is \_\_\_\_\_\_\_\_\_\_ when it contains 8 electrons (except H and He in Period 1). https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcQv52tp-lqjsj7Pu2d6VGiRFcTe3GfYT0wfE1d62l0A6qv50aZx0Q \_partial\_ valence shell https://encrypted-tbn1.gstatic.com/images?q=tbn:ANd9GcTdlzLU0U84iZluqEmrGoWgkxsBM4xnPQtxCpajHPAV3WYIHEE1\_empty\_ valence shellLi has \_\_\_\_ valence electrons and Ne has \_\_\_\_\_ valence electrons.\*Remember you need 8 electrons for an atom to be \_\_\_\_\_\_\_\_\_\_\_.A Lewis structure is a structural representation of a molecule where dots are used to show \_\_\_\_\_\_\_\_\_ position around the \_\_\_\_\_\_\_.File:Lewis dot Li.svg http://t1.gstatic.com/images?q=tbn:ANd9GcS4wNnxGkbxghE8bz4pb4SckGUY0L_HQ81wdDEPdKOMojz_hsUxggIonization energy is a measure of the difficulty of \_\_\_\_\_\_\_\_\_\_\_ electron or the strength by which an electron is bound. The higher the ionization energy, the more \_\_\_\_\_\_\_\_ it is to remove an electron.*\*Remember as you go from \_left\_\_ to \_right\_ across the periodic table it becomes more and more difficult to remove an electron.*A cation is an ion with a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_charge and is formed when an atom \_\_\_\_\_\_\_\_\_\_\_ one or more electrons.Groups 1, 2, and 13 tend to be \_\_\_\_\_\_\_\_\_.An anion is an ion with a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_charge and is formed when an atom \_\_\_\_\_\_\_\_\_\_\_ one or more electrons.Groups 15, 16 and 17 tend to be \_\_\_\_\_\_\_\_\_.*Practice:* Is Ca a cation or an anion? (Hint- what is Ca’s group #?)\_\_\_\_\_\_\_\_\_\_ Is F a cation or an anion? \_\_\_\_\_\_\_\_\_\_ |