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| Apply Rules for Atomic Trends  CλeMis+ry: http://genest.weebly.com  Stop in for help every day at lunch and Tues,&Thurs after school!  Our last Test will be Friday, May 27. |  | Name\_\_\_\_\_\_\_\_\_  Period\_\_\_\_\_\_\_\_ |

**All Trends**

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| Draw on this Periodic Table some arrows and numbers with a crayon or marker to show the following   1. Show which direction in **a period** the ionization energies increase 2. Show which direction in **a period** the atomic radius increases 3. Show which direction in **a period** the electronegativity increases 4. Show which direction in **a period** the charge of the nucleus increases |
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**Nuclear Charge Trends.**

1. This is a measure of how many positive charges are in the nucleus of the atom.
2. How many protons are in the nucleus of sodium? \_\_\_\_\_\_\_\_\_
3. What is the total positive charge of the nucleus of a sodium atom? \_\_\_\_\_\_\_\_\_
4. In each pair, circle the element that has a greater nucleus charge.
5. Neon or Helium
6. Hydrogen or Helium
7. Gold or Silver

**Atomic Radius Trends.**

1. In each pair, circle the element that has a greater radius.
2. Neon or Helium
3. Hydrogen or Helium
4. Magnesium or Potassium
5. Write a balanced equation for neutral fluorine atom gaining one electron:

\_\_\_\_ + \_\_\_\_ \_\_\_\_

1. Write a balanced equation for S2- anion losing two electrons:

\_\_\_\_ \_\_\_\_ + \_\_\_\_

**Electronegativity Trends.**

1. In each pair, circle the element that has a greater electronegativity.
2. phosphorous or chlorine
3. phosphorous or antimony
4. fluorine or iodine

**Ionization Energy Trends.**

1. In each pair, circle the element that has a greater electronegativity.
2. sodium or lithium
3. iron or zinc
4. oxygen or phosphorous

**Ion Radius Trends.**

1. When we speak of ion radius, we speak of their most common ions.

The ions for metals are usually ( negative / postitive ). The common ions for nonmetals are ( negative / postitive ).

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| Draw on this Periodic Table some arrows with a crayon or marker to show the following   1. Show which direction in **a group** the ionization energies increase 2. Show which direction in **a group** the atomic radius increases 3. Show which direction in **a group** the electronegativity increases 4. Show which direction in **a group** the charge of the nucleus increases |  |

1. Remember, for electrically charged objects, the two principles of force are:

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| * attraction decreases with distance * attraction decreases when charge decreases |

In each pair, circle the pair that has a greater attraction.

1. an electron and proton that are 2 nanometers apart **or** an electron and proton that are 3 nanometers apart
2. an electron and the nucleus of nitrogen **or** an electron and the nucleus of oxygen

***Below each particle group circle the total charge***

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| --- | --- | --- | --- |
|  |  |  |  |
| ( -2 / -1 / neutral / +1 / +2 ) | ( -2 / -1 / neutral / +1 / +2 ) | ( -2 / -1 / neutral / +1 / +2 ) | ( -2 / -1 / neutral / +1 / +2 ) |

|  |  |  |
| --- | --- | --- |
| 1. In which situation below will attraction be stronger? ( A / B / no difference ) |  | 1. In which situation below will attraction be stronger? ( A / B / no difference ) |
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|  |  |  |
| --- | --- | --- |
| 1. In which situation below will attraction be stronger? ( A / B / no difference ) |  | 1. In which situation below will attraction be stronger? ( A / B / no difference ) |
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1. **For which of these proper4ties does aluminum have a greater value than chlorine?**
2. first ionization energy?
3. atomic radius?
4. electronegativity?
5. Arrange these elements in order of **decreasing** atomic size: gold, platinum, mercury.
6. How does the radius of a cation compare with the radius of the neutral atom of the same element?
7. Arrange these elements in order of **decreasing** ionization energy: nitrogen, zinc, phosphorous .
8. Write a balanced equation for a calcium ion losing two electrons:

\_\_\_\_ + \_\_\_\_ \_\_\_\_