Unit 4 Test
Periodic Trends

Name: _____
Block: _____ **Score:** _____ **/ 30 points**

Atomic Forces

1. In your own words, define electron-electron repulsive force and explain how it affects the atomic structure.

2. In your own words, define nuclear force and explain how it affects the atomic structure.

Atomic Radius

1. Draw Bohr models of each atom to show the atomic radius trend for three consecutive **metal** atoms in the same **period**.

2. Draw Bohr models of each atom to show the atomic radius trend for three consecutive **nonmetal** atoms in the same **group**.

Ionic Radius

1. Draw Bohr models to show the ionic radius trend for **N** and $\mathbf{N^{-3}}$. Explain how the atom is different than the ion. Which is smaller? Why? What type of ion was created?

2. Draw Bohr models to show the ionic radius trend for **Mg** and $\mathbf{Mg^{+2}}$. Explain how the atom is different than the ion. Which is smaller? Why? What type of ion was created?

Ionization Energy

1. Define ionization energy.

2. How does the nuclear force affect the ionization energy trend?

3. Put the following atoms in order of increasing ionization energy: **potassium**, **phosphorus**, **beryllium**, and **neon**

Metallic Properties

1. Explain what it means to be malleable. Give an example of an element that **is** and that **is not** malleable.

2. Explain what it means to be ductile. Give an example of an element that **is** and that **is not** ductile.

Electronegativity

1. Define electronegativity.

2. Explain how it is different for metals and nonmetals.

3. Put the following atoms in order of increasing electronegativity: **nitrogen**, **calcium**, **sulfur**, and **argon**

Shielding

1. Draw Bohr models of each atom to show the atomic radius trend for three consecutive **nonmetal** atoms in the same **period**. *Indicate the level of shielding for each atom.*

2. Draw Bohr models of each atom to show the atomic radius trend for three consecutive **metal** atoms in the same **group**. *Indicate the level of shielding for each atom.*